



**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**AIR QUALITY PERMIT APPLICATION PACKET**

**FOR**

**ASPHALT PLANT OPERATIONS**

**CREATED ON FEBRUARY-12-1998**

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## INTRODUCTION

This manual has been developed specifically for the Hot Mix Asphalt plant operations to help streamline the Arizona Department of Environmental Quality (ADEQ) air quality permitting process and decrease the time required for a permit

review.

This manual is intended to clarify the contents of Appendix 1 of the Arizona Administrative Code (A.A.C.) (Standard Application Form and Filing Instructions) and aid the applicant in submitting the information required in a manner which will speed permit processing. By submitting a complete permit application, the application review time can be decreased significantly. In most cases, the proper submittal of items listed in this manual will ensure that the application contains all necessary information. However, ADEQ may require that additional information be submitted before the permit is processed.

**If a crushing and screening facility is operated on the same site in order to support the operation of the asphalt plant, the emissions from the crushing and screening facility needs to be calculated. ADEQ has a separate form which may be used to calculate the emissions. Please contact ADEQ for further assistance in this situation.**

## **JURISDICTION**

### **Stationary Sources**

Stationary sources shall apply to ADEQ, except for stationary sources which are located exclusively in Maricopa, Pima, or Pinal counties. If the stationary source is located in one of these three counties, contact that county agency for the application packet and other information.

### **Portable Sources**

Portable sources shall apply to ADEQ, except for portable sources which will operate for the duration of the permit solely in Maricopa, Pima, or Pinal county. If the portable source will operate for the duration of the permit in one of these three counties, contact that county agency for the application packet and other information.

If the applicant has any questions regarding jurisdictional issues, please contact ADEQ.

## **APPLICATION INSTRUCTIONS**

This section of the manual helps the applicant assemble a complete application, make the appropriate calculations, determine the applicable regulations, complete a compliance plan, and submit all information in a manner which will expedite permit review.

ADEQ recognizes that asphalt plants, in general, move frequently. The information provided in the application should reflect the most recent situation.

Please read all sections of this manual very carefully. Provide all information requested. The final application submitted should include the forms in Appendix 1 of this packet and any attachments necessary to submit all information (i.e. map, plot plan, etc.). Make additional copies of the forms as necessary to be sure all information is included.

### **STEP 1: STANDARD APPLICATION FORM**

A.A.C. R18-2-304 requires applicants to submit the Standard Application Form and Filing Instructions, Form 1 of Appendix 1 of this packet. The first step towards fulfilling the submittal requirements of a permit application is proper completion of the Standard Application Form. Items 1 through 5 of the application form are self-explanatory. The rest are explained below in detail.

Item #6 asks for the Plant/Site Manager or Contact Person. This should be the person ADEQ may contact for additional information.

Item #7 is necessary to determine the location of the plant. The section/township/range may be substituted for the latitude/longitude coordinates.

Item #8, the "Equipment Purpose" should describe what is produced at the plant.

Under item #9, if the "other" box is checked, please be specific as to what the organization is.

Item #10, Permit Application Basis, indicates what type of permit is necessary. If the plant is already permitted and is applying for a permit revision or renewal, then the current permit number must be included. The Date of Commencement of Construction or Modification is the expected date that construction will begin. This date need not be definite. The Standard Industrial Classification Code for hot mix asphalt plants is 2951.

If there is any chance that the equipment will be leased out, answer "yes" to the last part of item #10. If you check "no", the permit will contain a condition which prohibits leasing of the equipment; changing this condition will require a permit revision.

The "Responsible Official" referred to in item #11 is the owner or a partner of the company in most cases. It may also be the president or vice-president of larger companies. If there is a question as to who the responsible official is, please consult A.A.C. R18-2-301(10). This rule has been reproduced in Appendix 2 for reference.

## **STEP 2: PROCESS DESCRIPTION**

Please provide a process description. A process description is a complete description of the product manufacturing process. The description begins with the raw materials which make the product, and ends when the product is finished. This includes a description of how the process material is received, processed, and stored, and mixed, as well as how the final products are handled. The process description must include a discussion of the process materials including the amount of material the plant is able to process.

The process description should be accompanied by a process flow diagram. This diagram should depict all the processes and pollution abatement equipment the product flows through. The diagram should track the process description. A reviewer should be able to read the process description while looking at the process flow diagram, and relate exactly what is happening to the raw materials and products.

## **STEP 3: EMISSION SOURCES FORM**

The following discussion provides instruction as to how the emission sources form should be completed.

The first table entry is the emission point number. This should correspond to the number on the plot plan required in step 6 of this manual.

The name of the emission point must be placed in the next column. This name should correspond to the plot plan as well. The names may include, asphalt plant stack, aggregate storage piles, transfer points, generator, etc. The "Regulated Air Pollutant Name" is simply the name of the pollutant.

The "pounds per hour" and "ton per year" column must have the emission rate of the particular pollutant listed under the pollutant name category. These values should be taken from the corresponding tables in Form 3.

The UTM coordinates are not necessary for portable asphalt plants.

The "Height Above Ground" is just the distance between the exit of the emissions and the ground. The "Height Above Structure" is the distance between the structure below the exit and the exit. This length may be zero if the emissions are not vented through a stack but directly from the equipment.

The inside diameter or inside length and width of the stack are to be listed in the "Diameter" column. The exit velocity and temperature of the gases coming out of the stack are to be listed in the next two columns.

For non-point sources such as haul roads, aggregate piles, and transfer points, the length and width of the area which encompasses the emissions must be included.

**Note:**

**Since most of the information for Form 2 is drawn from Form 3, Form 3 must be completed prior to Form 2. The tabular references included in Form 2 refer to tables in Form 3.**

**Shaded sections in Form 2 indicate that the information is not required. Please ignore those sections.**

**STEP 4: CALCULATION OF EMISSIONS**

Air pollutant emission rate information has to be provided in Form 3 of Appendix 1. Form 3 contains worksheets to assist the applicant in calculating emission rates from the various processes associated with hot mix asphalt plant operations. The emission factors used have been drawn from an ADEQ memo titled "Emission Guidance Document for Hot Mix Asphalt Operations", dated February 12, 1998.

**STEP 5: MAP OF PLANT LOCATION**

Please provide a map of the current plant location. This may be a city map, topographical map or any map which clearly shows the location. Mark the location of the plant on the map and submit it as part of the application. The map should include driving directions to the plant site from the nearest highway.

**STEP 6: PLOT PLAN**

Please provide a plot plan of the current equipment configuration. A plot plan is an aerial drawing of the plant property drawn to scale or dimensions shown. It should include:

1. Clearly identified property boundaries;
2. All buildings with their respective dimensions (length, width, and height);
3. A schematic of the typical equipment layout;
4. Location of the stack and all tanks, silos, bins, conveyors, storage piles, control equipment, and other equipment;
5. Clearly identified and numbered emission points which correspond to the emission sources form,;
6. A north arrow;
7. A scale if the drawing is to scale;
8. Adjacent streets or roads and street names if available; and
9. Location, length and width of haul roads

**STEP 7: EQUIPMENT LIST**

ADEQ needs to be able to identify all pieces of equipment covered under each permit. Use Form 4 of Appendix 1 to provide a list of all pieces of equipment to be permitted including control equipment and generators (make additional copies if necessary). The list should include not only the **type of equipment, but also the make, model, serial number, manufacture date of asphalt plant, equipment identification number (if available) of each piece of equipment and a brief description of any reconstruction or modification performed on any of the equipment.**

In many cases, the plant will not yet have been purchased at the time of application. If this is the case, the serial number will not need to be listed, but an equipment identification number will need to be provided. The equipment identification

number must be clearly stenciled on each piece of equipment to be permitted once such equipment is purchased.

#### **STEP 8: DESCRIPTION OF AIR POLLUTION CONTROL EQUIPMENT AND PROCEDURES**

All pollution control equipment and pollution control procedures must be described in order to satisfy this submittal requirement. Form 5 can be used to submit the necessary pollution control information.

#### **STEP 9: DETERMINING THE APPLICABLE REGULATIONS**

In completing an application, it is necessary for the applicant to be familiar with the regulations which apply. Below is a list of the regulations which apply to asphalt plants.

If the asphalt facility was manufactured or modified on or before June 11, 1973, the source is subject to:

- 3      **A.A.C. R18-2-702, General Provisions; and**  
         **A.A.C. R18-2-708, Standards of Performance for Existing Asphalt Concrete Plants;**  
         note: Asphalt facilities which are subject to R18-2-708 are considered non-Title V. The fee structure is different for Title V and non-Title V plants.

or if the facility was modified after June 11, 1973 the source is subject to:

- 3      **A.A.C. R18-2-901.11 (40 CFR 60 Subpart I), Standards of Performance for New Stationary Sources, Hot Mix Asphalt Facilities**  
         note: Asphalt plant facilities which are subject to R18-2-901.11 are considered Title V. The fee structure is different for Title V and non-Title V sources.

The following is a listing of additional regulations that may apply to asphalt plants. This is not a complete list. If necessary, the source needs to identify other regulations that may apply and list them.

1.      **A.A.C. R18-2-601 General Provisions for Emissions from Existing and New Nonpoint Sources**
2.      **A.A.C. R18-2-604 Standards for Open Areas, Dry Washes or Riverbeds**
3.      **A.A.C. R18-2-605 Standards for Roadways and Streets**
4.      **A.A.C. R18-2-606 Standards for Material Handling**
5.      **A.A.C. R18-2-607 Standards for Storage Piles**
6.      **A.A.C. R18-2-310 Excess Emissions**
7.      **A.A.C. R18-2-311 Test Methods and Procedures**
8.      **A.A.C. R18-2-312 Performance Tests**
9.      **A.A.C. R18-2-315 Posting of Permit**
10.     **A.A.C. R18-2-327 Annual Emissions Inventory Questionnaire**
11.     **A.A.C. R18-2-324 Portable Sources**
12.     **A.A.C. R18-2-201 through 220 Ambient Air Quality Standards**
13.     **A.A.C. R18-2-326 or R18-2-511 Fees Related to Individual and General Permits (respectively)**
14.     **A.A.C. R18-2-719 Stationary Rotating Machinery (if a generator is used)**

#### **STEP 10: COMPLIANCE PLAN, COMPLIANCE SCHEDULE, AND CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS**

A compliance plan/certification must be submitted by all applicants. FORM 6 can be used to submit a compliance plan/certification.

For all applicable requirements for which the source is **OUT OF COMPLIANCE**, the applicant is required to submit a *schedule of compliance*. The goal of the schedule of compliance is to outline the steps being taken to bring the source back into compliance with all applicable regulations. The format of a schedule of compliance can vary widely depending on the type and extent of non-compliance. Two examples are provided below:

- A.      *A source is required by a prior permit to complete a performance test on the rotary drum dryer stack*

*prior to permit expiration. The source has not completed this test before applying for a renewal.*

The following information will have to be provided by the source as part of its compliance plan:

Compliance Status : The source will have to report the fact that a prior permit condition has been violated.

Schedule of Compliance: The source will have to provide a plan which outlines the steps being taken to achieve compliance. The enforceable sequence of actions could include the following milestones - (a) date on which performance test is planned for, (b) date on which report will be submitted to ADEQ.

- B. *A source is unable to comply with the 40% opacity standard for visible emissions from area sources such as unpaved haul roads in spite of constant watering.*

The following information will have to be provided by the source as part of its compliance plan:

Compliance Status: The source will have to report non-compliance with an applicable requirement.

Schedule of Compliance: The source will have to provide a plan which outlines the steps being taken to achieve compliance. The enforceable sequence of actions could include the following milestones - (a) date on which bid to purchase chemical dust suppressants is advertised, (b) date on which chemical dust suppressant is planned to be purchased, and (c) date on which chemical dust suppressant is planned to be applied.

The schedule of compliance has to be submitted **only** by those sources which are non-compliant with an applicable regulation. The above examples are merely to illustrate possible formats for a schedule of compliance. **In reality it is necessary for non-compliant sources to work with ADEQ staff to draft such schedules. Any applicant required to submit a schedule of compliance is strongly encouraged to contact ADEQ staff.**

## **APPENDIX 1 : FORMS**

**FORM 1: STANDARD PERMIT APPLICATION FORM**

(As required by A.R.S. § 49-426 and Chapter 2, Article 3, Arizona Administrative Code)

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**Air Quality Division**  
**3003, N. Central Avenue, Phoenix, AZ-85012-290703. Phone: (602) 207-2338**

1. Permit to be issued to: (Business license name of organization that is to receive permit) \_\_\_\_\_
2. Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
3. Previous Company Name: (if applicable) \_\_\_\_\_
4. Name (or names) of Owners/Principals: \_\_\_\_\_  
Fax #: \_\_\_\_\_ Phone #: \_\_\_\_\_
5. Name of owner's agent: \_\_\_\_\_  
Fax #: \_\_\_\_\_ Phone #: \_\_\_\_\_
6. Plant/Site Manager or Contact Person/Title: \_\_\_\_\_  
Fax #: \_\_\_\_\_ Phone #: \_\_\_\_\_
7. Proposed Plant Name: \_\_\_\_\_  
Proposed Plant Location/ Address: \_\_\_\_\_  
City: \_\_\_\_\_ County: \_\_\_\_\_ Zip: \_\_\_\_\_  
Indian Reservation (if applicable): \_\_\_\_\_  
Latitude/Longitude, Elevation: \_\_\_\_\_
8. Equipment Name/Purpose: \_\_\_\_\_  
Equipment List/Description: \_\_\_\_\_
9. Type of Organization:  
☐ Corporation ☐ Individual Owner  
☐ Partnership ☐ Governmental Entity (Governmental Facility Code: \_\_\_\_\_)
10. Permit Application basis: ☐ New Source ☐ Revision ☐ Renewal of existing permit  
☐ Portable Source ☐ General Permit  
For renewal and modification, include existing permit number (and exp date): \_\_\_\_\_ Date  
of commencement of construction or modification: \_\_\_\_\_  
Is any of the equipment to be leased to another individual or entity: ☐ Yes ☐ No  
Standard Industrial Classification Code: \_\_\_\_\_ State Permit Class: \_\_\_\_\_
11. Signature of Responsible Official: \_\_\_\_\_  
Official title of Signer: \_\_\_\_\_  
Typed or Printed Name of Signer: \_\_\_\_\_ Date: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**FORM 2: EMISSION SOURCES FORM**



Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAM						
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)			
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Dia (ft)	E
	Rotary Drum Dryer	PM ( A.1.a or A.2.a) (controlled)									
		PM-10 ( A.1.a or A.2.a) (controlled)									
		CO (A.1.b or A.2.b)									
		NOX (A.1.b or A.2.b)									
		SO2 (A.1.b or A.2.b)									
		VOC (A.1.b or A.2.b)									
		Acetaldehyde (A.1.c.i or A.2.c.i)									
		Acetone (A.1.d.i or A.2.d.i)									
		Acrolein (A.1.c.i or A.2.c.i)									
		Benzene (A.1.c.i or A.2.c.i)									

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (NOx), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground " of stack
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAM						
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)			
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Dia (ft)	E
	Rotary Drum Dryer	Benzo(a)anthracene (A.1.c.i or A.2.c.i)									

		Benzo(a)pyrene (A.1.c.i or A.2.c.i)												
		Dibenz(a,h)anthracene (A.1.c.i or A.2.c.i)												
		Ethyl benzene (A.1.c.i or A.2.c.i)												
		Formaldehyde (A.1.c.i or A.2.c.i)												
		Indeno(1,2,3-cd)pyrene(A.1.d.i or A.2.d.i)												
		Methyl chloroform (A.1.c.i or A.2.c.i)												
		Methyl ethyl ketone (A.1.c.i or A.2.c.i)												
		Naphthalene (A.1.c.i or A.2.c.i)												
		Propionaldehyde (A.1.c.i or A.2.c.i)												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO<sub>2</sub>), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground" of stack
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA			EMISSION POINT DISCHARGE PARAMETERS		
EMISSION POINT (1)	Chemical Composition	Emission rates	UTM coordinates of emission point (5)	Stack Sources (6)	Non point sources (7)

Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	Rotary Drum Dryer	Quinone (A.1.d.i or A.2.d.i )												
		Toluene (A.1.c.i or A.2.c.i)												
		Xylene (A.1.c.i or A.2.c.i)												
		Arsenic (A.1.c.ii or A.2.c.ii)												
		Barium (A.1.d.ii or A.2.d.ii)												
		Beryllium (A.1.c.ii or A.2.c.ii)												
		Cadmium (A.1.c.ii or A.2.c.ii)												
		Chromium (A.1.c.ii or A.2.c.ii)												
		Copper (A.1.d.ii or A.2.d.ii)												
		Hexavalent Chromium (A.1.c.ii or A.2.c.ii)												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground of stack".
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)					Non point sources (7)	
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	Rotary Drum Dryer	Lead (A.1.c.ii or A.2.c.ii)												
		Manganese (A.1.c.ii or A.2.c.ii)												
		Mercury (A.1.c.ii or A.2.c.ii)												
		Nickel (A.1.c.ii or A.2.c.ii)												
		Phosphorus (A.1.c.ii or A.2.c.ii)												
		Selenium (A.1.c.ii or A.2.c.ii)												
		Silver (A.1.d.ii or A.2.d.ii)												
	Asphalt Cement Heater	CO (Table B.1)												
		VOC (Table B.1)												

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
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6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground" of stack

7. Dimensions of nonpoint sources are defined in R-18-2-101.

# **FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)				Non point sources (7)		
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	Asphalt Cement Heater	NOX (Table B.1)												
		PM-10 (Table B.1)												
		SOX (Table B.1)												
		Antimony (Table B.2)												
		Arsenic (Table B.2)												
		Beryllium (Table B.2)												
		Cadmium (Table B.2)												
		Chromium (Table B.2)												
		Cobalt (Table B.2)												
		Lead (Table B.2)												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

## **General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.

2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds

(VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.

3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.

4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.

5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.

6. Supply additional information as follows if appropriate:

a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.

b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground" of stack.

7. Dimensions of nonpoint sources are defined in R-18-2-101.

## FORM 2: EMISSION SOURCES FORM

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)				Non point sources (7)		
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	<b>Asphalt Cement Heater</b>	Manganese (Table B.2)												
		Mercury (Table B.2)												
		Nickel (Table B.2)												
		Selenium (Table B.2)												
		Polycyclic Organic Material (Table B.2)												
		Formaldehyde (Table B.2)												
	<b>Process Support Generators</b>	CO (Table C.1)												
		VOC (Table C.1)												

		NOX (Table C.1)											
		PM-10 (Table C.1)											

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3 " of stack height above ground" of stack.
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)				Non point sources (7)		
Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	Process support generators	SOX (Table C.1)												
	Fugitive Emissions	Table D.1												
	Continuous and batch drop operations	PM												
		PM-10												

	Wind erosion from aggregate piles	PM												
		PM-10												
	Wind erosion from sand piles	PM												
		PM-10												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3" of stack height above ground of stack."
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		Chemical Composition	Emission rates		UTM coordinates of emission point (5)			Stack Sources (6)				Non point sources (7)		
Numbe r	Name	Regulated air pollutant name (2)	# /hr (3)	ton/yea r (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	Fugitive Emissions (contd)													



	Transfer operations to feed hopper, elevated bins and weigh hoppers	PM												
		PM-10												
	Cement transfer to silos	PM												
		PM-10												
	Cement transfer to weigh hoppers	PM												
		PM-10												
	Conveyor transfer points	PM												
		PM-10												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3" of stack height above ground of stack."
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 2: EMISSION SOURCES FORM**

Estimated "Potential to Emit" per R18-2-101

Review of applications and issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA			EMISSION POINT DISCHARGE PARAMETERS		
EMISSION POINT (1)	Chemical Composition	Emission rates	UTM coordinates of emission point (5)	Stack Sources (6)	Non point sources (7)

Number	Name	Regulated air pollutant name (2)	# /hr (3)	ton/year (4)	zone	east (meters)	north (meters)	Height above ground (feet)	Height above structure (feet)	Exit data			Length (ft)	Width (ft)
										Dia (ft)	Vel (fps)	Temp (deg F)		
	<b>Fugitive Emissions (contd)</b>													
	Screening points	PM												
		PM-10												
	Vehicle traffic (unpaved roads, transport vehicles)	PM												
		PM-10												
	Vehicle traffic (unpaved roads, front end loaders)	PM												
		PM-10												

Ground elevation of facility above mean sea level \_\_\_\_\_ feet.

ADEQ standard conditions are 293K and 101.3 KiloPascals (A.A.C. R18-2-101)

**General Instructions:**

1. Identify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits and emission inventory questionnaire. Include fugitive emissions. Limit emission point number to (8) character spaces. For each emission point, use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (Nox), Sulfur Dioxide (SO2), Volatile Organic Compounds (VOC), Particulate Matter (PM), Particulate Matter less than 10 microns (PM-10), etc. Abbreviations are OK.
3. Pounds per hour (#/hr) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum, applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
  - a. Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate horizontal discharge with a note.
  - b. Stack's height above supporting or adjacent structures if structure is within 3" of stack height above ground of stack."
7. Dimensions of nonpoint sources are defined in R-18-2-101.

**FORM 3: EMISSIONS CALCULATIONS**

In order for ADEQ to fully evaluate a permit application, the amount of pollutants emitted from the hot mix asphalt plant operations must be estimated. This section of the manual is intended to guide the applicant through the emission calculations.

#### **A. EMISSIONS FROM ROTARY DRUM DRYER**

The rotary drum dryer is the equipment used to heat and dry the aggregates before they are mixed with the liquid asphalt cement. Based on the way in which the aggregates are mixed with the liquid cement, the drying process is classified into two types: Batch Mix and Drum Mix. It should be noted that values of the emission factors are different for batch mix and drum mix processes. So care should be taken to choose the appropriate tables.

##### **1. Batch Mix process**

Hot mix asphalt is a mixture of aggregates (sand, stone and sometimes reclaimed asphalt pavement) and liquid asphalt cement, which is heated and mixed in measured quantities. In a batch mix process, the aggregates are first heated and dried in a rotary dryer and then transferred to a pug mill where the actual mixing with the liquid asphalt cement takes place.

**If a Drum Mix process is employed, skip this section. Section A.2 deals with emission calculations for rotary dryers using a drum mix process.**

*a. Emissions of PM and PM-10*

The following table must be completed to estimate Particulate Matter (PM) and Particulate Matter under 10 microns (PM-10) emissions from the rotary dryer used in a batch mixing process. All columns corresponding to “Uncontrolled” process should be entered. Additionally, if a control is used, all columns corresponding to that control should be entered. To calculate PM and PM-10 emissions, multiply the maximum throughput rate listed in column (1 ) by the emissions factors listed in column (2) or (3) and the conversion factor listed in column (4).

**Table A.1.a**

Process	Maximum throughput rate (ton/hr) (1)	Emission factors (lbs/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	PM Emissions (lb/hr) (1) x (2)	PM-10 Emissions (lb/hr) (1) x (3)	PM Emissions (ton/yr) (1) x (2) x (4)	PM-10 Emissions (ton/yr) (1)x (3) x (4)
		PM (2)	PM-10 (3)					
Natural-gas fired dryer								
Uncontrolled		32	4.5	4.38				
Low energy scrubber		0.081	0.035	4.38				
Venturi scrubber		0.056	0.025	4.38				
Fabric filter		0.044	0.02	4.38				
Oil fired dryer								
Uncontrolled		32	4.5	4.38				
Venturi Scrubber		0.086	0.055	4.38				
Fabric filter		0.074	0.05	4.38				

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*b. Emissions of CO, NO<sub>x</sub>, SO<sub>2</sub> and VOC*

The following table must be completed to calculate emissions of Carbon Monoxide (CO), Nitrogen Oxides (NO<sub>x</sub>), Sulfur Dioxide (SO<sub>2</sub>) and Volatile Organic Compounds (VOC) from the rotary dryer used in a batch mixing process. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), (4), or (5) ) and the conversion factor listed in column (6) to yield the total emissions of each pollutant.

The Crumb Rubber process involves the addition of crumb rubber to the aggregates and the liquid cement to enhance the physical attributes of the final product. If this process is employed, please use the following emission factors for VOC in place of the values listed in the table : (a) Natural gas fired : 0.187 lb/ton of asphalt, and (b) oil fired/waste oil: 0.216 lb/ton of asphalt

**Table A.1.b**

Process	Maximum throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)				Conversion factor (ton/yr)/(lb/hr) (6)	Emissions (lb/hr)				Total emissions (ton/yr)			
		CO (2)	NO <sub>x</sub> (3)	SO <sub>2</sub> (4)	VOC (5)		CO (1) X (2)	NO <sub>x</sub> (1) x (3)	SO <sub>x</sub> (1) x (4)	VOC (1) x (5)	CO (1) x (2) x (6)	NO <sub>x</sub> (1) x (3) x (6)	SO <sub>2</sub> (1) x (4) x (6)	VOC (1) x (5) x (6)
Natural gas fired		0.34	0.025	0.005	0.017	4.38								
Oil fired/ waste oil		0.069	0.17	0.24	0.046	4.38								

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c. Emissions of Hazardous Air Pollutants

i. Organic Pollutants

The following table should be completed to estimate emissions of hazardous organic pollutants from the rotary dryer used in a batch mixing process. For the total emissions calculations, choose the emission factors listed in columns 2, 3, or 4 based on firing fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4)) and the conversion factor listed in column (5) to yield the total emissions of each pollutant.

“E” is an abbreviation for the term “exponential”. For example, the emission factor for Acrolein from waste oil-fired Batch Mix processes is listed as 2.6 E-05. This is the same as  $2.6 \times 10^{-05} = 2.6/100000 = 0.000026$ .

**Table A.1.c.i**

Pollutant	Max throughput rate (ton/hr) (1)	Emission factor for Batch Mix (lb/ton of asphalt)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (Lb/hr) (1) x (2 or 3 or 4)	Total emissions (tpy) 1 x (2 or 3 or 4) x 5
		Natural gas (2)	Oil-fired (3)	Waste oil fired (4)			
Acetaldehyde		0.00064	ND	0.0013	4.38		
Acrolein		ND	ND	2.6 E-05	4.38		
Benzene		0.00035	ND	0.00041	4.38		
Benzo(a)anthracene		4.5 E-09	ND	ND	4.38		
Benzo(a)pyrene		ND	ND	ND	4.38		
Dibenz(a,h)anthracene		ND	ND	ND	4.38		
Ethyl benzene		0.0033	ND	0.00038	4.38		
Formaldehyde		0.00086	0.0032	0.0032	4.38		
Methyl chloroform		ND	ND	ND	4.38		
Methyl ethyl ketone		ND	ND	2 E-05	4.38		
Naphthalene		4.2E-05	4.5E-05	0.00047	4.38		
Propionaldehyde		ND	ND	0.00013	4.38		
Toluene		0.0018	ND	0.00075	4.38		
Xylene		0.0043	ND	0.00016	4.38		

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ii. Metals

This table should be completed to estimate emissions of metals from the rotary dryer used in a batch mixing process. In the calculations of total emissions, choose emission factors 2 or 3 based on the fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2) or (3) ) and the conversion factor listed in column (4) to yield the total emissions of each pollutant.

**Table A.1.C.ii**

Pollutant	Max throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	Emissions (lb/hr) (1) x (2 or 3)	Total emissions (ton/yr) 1 x (2 or 3) x (4)
		Regular fuel (2)	Batch firing waste oil (3)			
Arsenic		6.6E-07	1.9E-06	4.38		
Beryllium		2.2E-07	ND	4.38		
Cadmium		8.4E-07	6.2E-07	4.38		
Chromium		8.9E-07	1.2E-05	4.38		
Hexavalent Chromium		9.7E-09	ND	4.38		
Lead		7.4E-07	6.0E-06	4.38		
Manganese		9.9E-06	1.1E-05	4.38		
Mercury		4.5E-07	ND	4.38		
Nickel		4.2E-06	1.5E-05	4.38		
Phosphorus		ND	5.5E-05	4.38		
Selenium		9.2E-08	ND	4.38		

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*d. Emissions of State Air Toxics*

Emissions of pollutants classified as State Air Toxics have to be quantified. These pollutants are subject to the Arizona Ambient Air Quality Guidelines. There is a significant overlap between pollutants classified as Hazardous Air Pollutants and those classified as State Air Toxics. However, separate tables have been developed to highlight the differences between the regulatory processes for Hazardous Air Pollutants and State Air Toxics. This design is expected to facilitate expeditious permit application review.

*i. Organic Pollutants*

The following table must be completed to estimate emissions of organic pollutants from the rotary dryer used in a batch mix process. For the total emissions calculations, choose the emission factors listed in columns 2, 3, or 4 based on firing fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (5) to yield the total emissions of each pollutant.

“E” is an abbreviation for the term “exponential”. For example, the emission factor for Acrolein from waste oil-fired Batch Mix processes is listed as 2.6 E-05. This is the same as  $2.6 \times 10^{-05} = 2.6/100000 = 0.000026$ .

**Table A.1.d.i**

Pollutant	Max throughput rate (ton/hr) (1)	Emission factor for Batch Mix (lb/ton of asphalt)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (lb/hr) (1) x (2 or 3 or 4)	Total emissions (tpy) 1 x (2 or 3 or 4) x (5)
		Natural gas (2)	Oil-fired (3)	Waste oil fired (4)			
Acetaldehyde		0.00064	ND	0.0013	4.38		
Acetone		0.0064	ND	0.00083	4.38		



Pollutant	Max throughput rate (ton/hr) (1)	Emission factor for Batch Mix (lb/ton of asphalt)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (lb/hr) (1 x (2 or 3 or 4))	Total emissions (tpy) 1 x (2 or 3 or 4) x (5)
		Natural gas (2)	Oil-fired (3)	Waste oil fired (4)			
Acrolein		ND	ND	2.6 E-05	4.38		
Benzene		0.00035	ND	0.00041	4.38		
Benzo(a)anthracene		4.5 E-09	ND	ND	4.38		
Benzo(a)pyrene		ND	ND	ND	4.38		
Dibenz(a,h)anthracene		ND	ND	ND	4.38		
Ethyl benzene		0.0033	ND	0.00038	4.38		
Formaldehyde		0.00086	0.0032	0.0032	4.38		
Indeno(1,2,3-cd)pyrene		ND	ND	ND	4.38		
Methyl chloroform		ND	ND	ND	4.38		
Methyl ethyl ketone		ND	ND	2 E-05	4.38		
Naphthalene		4.2E-05	4.5E-05	0.00047	4.38		
Quinone		0.00027	ND	0.00016	4.38		
Toluene		0.0018	ND	0.00075	4.38		
Xylene		0.0043	ND	0.00016	4.38		

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ii. Metals

The following table must be completed to estimate emissions of metals from the rotary dryer used in a batch mix process. In the calculation of total emissions, choose emission factors 2 or 3 based on the fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2) or (3) ) and the conversion factor listed in column (4) to yield the total emissions of each pollutant.

**Table A.1.d.ii**

Pollutant	Max throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	Emissions (lb/hr) (1) x (2 or 3 )	Total emissions (ton/yr) 1 x (2 or 3) x (4)
		Regular fuel (2)	Batch firing waste oil (3)			
Arsenic		6.6E-07	1.9E-06	4.38		
Barium		1.5E-06	4.8E-06	4.38		
Beryllium		2.2E-07	ND	4.38		
Cadmium		8.4E-07	6.2E-07	4.38		
Chromium		8.9E-07	1.2E-05	4.38		
Copper		3.7E-06	6.1E-06	4.38		
Hexavalent Chromium		9.7E-09	ND	4.38		
Manganese		9.9E-06	1.1E-05	4.38		

Pollutant	Max throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	Emissions (lb/hr) (1) x (2 or 3)	Total emissions (ton/yr) 1 x (2 or 3) x (4)
		Regular fuel (2)	Batch firing waste oil (3)			
Mercury		4.5E-07	ND	4.38		
Nickel		4.2E-06	1.5E-05	4.38		
Selenium		9.2E-08	ND	4.38		
Silver		ND	1.4E-06	4.38		

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## 2. Drum Mix Process

Hot mix asphalt is a mixture of aggregates (sand, stone and sometimes reclaimed asphalt pavement) and liquid asphalt cement, which is heated and mixed in measured quantities. In a drum mix process, the aggregates and the asphalt cement are introduced at different points in the rotary dryer, mixed and dried.

**If a batch mix process is employed, skip this section. Section A.1 deals with emission calculations for rotary dryers using a batch mix process.**

### a. Emissions of PM and PM-10

The table must be completed to estimate Particulate Matter (PM) and Particulate Matter under 10 microns (PM-10) emissions from the rotary dryer used in a drum mixing process. All columns corresponding to “Uncontrolled” process should be entered. Additionally, if a control is used, all columns corresponding to that control should be entered. To calculate PM and PM-10 emissions, multiply the maximum throughput rate listed in column (1) by the emissions factors listed in column (2) or (3) and the conversion factor listed in column (4).

**Table A.2.a**

Process	Max throughput rate(ton/hr) (1)	Emission factors (lbs/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	PM Emissions (lb/hr) (1) x (2)	PM-10 Emissions (lb/hr) (1) x (3)	PM Emissions (ton/yr) (1) x (2) x (4)	PM-10 Emissions (ton/yr) (1) x (3) x (4)
		PM (2)	PM-10 (3)					
Natural-gas fired dryer								
Uncontrolled		19	4.3	4.38				
Low energy scrubber		ND	ND	4.38				
Venturi scrubber		0.037	0.015	4.38				
Fabric filter		0.018	0.0081	4.38				
Oil fired dryer								
Uncontrolled		19	4.3	4.38				
Venturi Scrubber		0.067	0.045	4.38				
Fabric filter		0.048	0.038	4.38				

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*b. Emissions of VOC, NO<sub>x</sub>, SO<sub>x</sub> and CO*

The following table must be completed to calculate emissions of Carbon Monoxide (CO), Nitrogen Oxides (NO<sub>x</sub>), Sulfur Oxides (SO<sub>x</sub>) and Volatile Organic Compounds (VOC) from the rotary dryer used in a drum mixing process. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2) or (3) ) and the conversion factor listed in column (4) to yield the total emissions of each pollutant.

The Crumb Rubber process involves the addition of crumb rubber to the aggregates and the liquid cement to enhance the physical attributes of the final product. If this process is employed, please use the following emission factors for VOC : (a) Natural gas fired : 0.222 lb/ton of asphalt, and (b) oil fired/waste oil: 0.24 lb/ton of asphalt.

**Table A.2.c**

Process	Max throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)				Conversion factor (ton/yr)/(lb/hr) (6)	Emissions (lb/hr)				Total emissions (ton/yr)			
		CO (2)	NOx (3)	SOx (4)	VOC (5)		CO (1) x (2)	NOx (1) x (3)	SOx (1) x (4)	VOC (1) x (5)	CO (1) x (2) x (6)	NOx (1) x (3) x (6)	SOx (1) x (4) x (6)	VOC (1) x (5) x (6)
Natural gas		0.056	0.03	0.0033	0.051	4.38								
Oil fired/ waste oil fired		0.036	0.075	0.056	0.069	4.38								

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*c. Emissions of Hazardous Air Pollutants*

*i. Organic Pollutants*

This table must be completed to calculate emissions of organic pollutants from the rotary dryer used in a drum mixing process. For the total emissions calculations, choose the emission factors listed in columns (2), (3), or (4) based on firing fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4)) and the conversion factor listed in column (5) to yield the total emissions of each pollutant.

“E” is an abbreviation for the term “exponential”. For example, the emission factor for Acrolein from waste oil-fired Batch Mix processes is listed as 2.6 E-05. This is the same as  $2.6 \times 10^{-5} = 2.6/100000 = 0.000026$ .

Table A.2.c.i

Pollutant	Max through put rate (ton/hr) (1)	Emission factor for Drum Mix (lb/ton of asphalt)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (lb/hr) (1) x (2 or 3 or 4)	Total emissions (tpy) 1 x (2 or 3 or 4) x (5)
		Natural gas (2)	Oil-fired (3)	Waste oil fired (4)			
Acetaldehyde		ND	ND	0.0013	4.38		
Acrolein		ND	ND	2.6 E-05	4.38		
Benzene		0.0012	ND	0.00041	4.38		
Benzo(a)anthracene		2 E-07	ND	ND	4.38		
Benzo(a)pyrene		9.2E-09	ND	ND	4.38		
Dibenz(a,h)anthracene		2.7E-09	ND	ND	4.38		
Ethyl benzene		0.00029	ND	0.00038	4.38		
Formaldehyde		0.0036	0.0017	0.0032	4.38		
Methyl chloroform		4.8E-05	ND	ND	4.38		
Methyl ethyl ketone		ND	ND	2 E-05	4.38		
Naphthalene		4.8E-05	0.00015	0.00047	4.38		
Toluene		0.0002	ND	0.00075	4.38		
Xylene		0.0004	ND	0.00016	4.38		

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ii. Metals

This table must be completed to calculate emissions of metals from the rotary dryer used in a drum mixing process. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2) or (3) ) and the conversion factor listed in column (4) to yield the total emissions of each pollutant. In the calculation of total emissions, choose emission factors 2 or 3 based on the fuel used.

Table A.2.c.ii

Pollutant	Max throughput rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	Emissions (lb/hr) (1) x (2 or 3)	Total emissions (tpy) 1 x (2 or 3) x (4)
		Regular fuel (2)	Drum firing waste oil (3)			
Arsenic		2.5E-07	1.9E-06	4.38		
Beryllium		ND	ND	4.38		
Cadmium		2.5E-07	6.2E-07	4.38		
Chromium		ND	1.2E-05	4.38		
Hexavalent Chromium		ND	ND	4.38		
Lead		6.2E-07	6.0E-06	4.38		
Manganese		ND	1.1E-05	4.38		
Mercury		7.3E-09	ND	4.38		
Nickel		ND	1.5E-05	4.38		
Phosphorus		ND	5.5E-05	4.38		
Selenium		ND	ND	4.38		

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*d. Emissions of State Air Toxics*

Emissions of pollutants classified as State Air Toxics have to be quantified. These pollutants are subject to the Arizona Ambient Air Quality Guidelines. There is a significant overlap between pollutants classified as Hazardous Air Pollutants and those classified as State Air Toxics. However, separate tables have been developed to highlight the differences between the regulatory processes for Hazardous Air Pollutants and State Air Toxics. This design is expected to facilitate expeditious permit application review.

i. Organic Pollutants

The following table must be completed to estimate emissions of organic pollutants from the rotary dryer used in a drum mix process. For the total emissions calculations, choose the emission factors listed in columns 2, 3, or 4 based on firing fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (5) to yield the total emissions of each pollutant.

Table A.2.d.i

Pollutant	Max throughput rate (ton/hr) (1)	Emission factor for Drum Mix (lb/ton of asphalt)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (lb/hr) (1) x (2 or 3 or 4)	Total emissions (tpy) 1 x (2 or 3 or 4) x (5)
		Natural gas (2)	Oil-fired (3)	Waste oil fired (4)			
Acetaldehyde		ND	ND	0.0013	4.38		
Acetone		ND	ND	0.00083	4.38		
Acrolein		ND	ND	2.6 E-05	4.38		
Benzene		0.0012	ND	0.00041	4.38		
Benzo(a)anthracene		2 E-07	ND	ND	4.38		
Benzo(a)pyrene		9.2E-09	ND	ND	4.38		
Dibenz(a,h)anthracene		2.7E-09	ND	ND	4.38		
Ethyl benzene		0.00029	ND	0.00038	4.38		
Formaldehyde		0.0036	0.0017	0.0032	4.38		
Methyl chloroform		4.8E-05	ND	ND	4.38		
Methyl ethyl ketone		ND	ND	2 E-05	4.38		
Naphthalene		4.8E-05	0.00015	0.00047	4.38		
Toluene		0.0002	ND	0.00075	4.38		
Xylene		0.0004	ND	0.00016	4.38		

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ii. Metals

The following table must be completed to estimate emissions of metals from the rotary dryer used in a drum mixing process. In the calculation of total



emissions, choose emission factors 2 or 3 based on the fuel used. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2) or (3) ) and the conversion factor listed in column (4) to yield the total emissions of each pollutant.

Table A.2.d.ii

Pollutant	Max through put rate (ton/hr) (1)	Emission factors (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (4)	Emissions (lb/hr) (1) x (2 or 3)	Total emissions (tpy) 1 x (2 or 3) x (4)
		Regular fuel (2)	Drum firing waste oil (3)			
Arsenic		2.5E-07	1.9E-06	4.38		
Barium		ND	4.8E-06	4.38		
Beryllium		ND	ND	4.38		
Cadmium		2.5E-07	6.2E-07	4.38		
Chromium		ND	1.2E-05	4.38		
Copper		ND	6.1E-06	4.38		
Hexavalent Chromium		ND	ND	4.38		
Manganese		ND	1.1E-05	4.38		
Mercury		7.3E-09	ND	4.38		
Nickel		ND	1.5E-05	4.38		
Selenium		ND	ND	4.38		
Silver		ND	1.4E-06	4.38		

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## B. EMISSIONS FROM ASPHALT CEMENT STORAGE HEATERS

The asphalt cement storage heaters are utilized for heating the liquid asphalt cement before it is mixed with the aggregates, either in the rotary dryer or in the pug mill. This heating process is a possible source of different pollutants.

1. Emissions of CO, VOC, SOx, NOx and PM-10

The following table must be completed to estimate emissions of Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Nitrogen Oxides (NOX), Sulfur Oxides ( SOx) from the asphalt cement heater. In the calculation of total emissions, choices 2, 3, 4, or 5 need to be made based on the fuel used for the heater. The fuel consumption rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), (4), or (5)) and the conversion factor listed in column (6) to yield the total emissions of each pollutant.

Table B.1

Pollutant	Fuel consumed gallons/hr (1)	Emission factors (lbs/ gallon)				Conversion factor (ton/yr)/(lb/hr) ) (6)	Emissions (lb/hr) (1) x (2 or 3 or 4)	Total emissions (tpy) 1 x (2 or 3 or 4 or 5) x (6)
		Natural gas (2)	LPG (3)	Distillate oil (4)	Residual oil (5)			
CO		2.8E-06	0.002	0.005	0.005	4.38		
VOC		3.7E-07	0.00019	0.0002	0.0028	4.38		
NOx		1.3E-05	0.0145	0.02	0.055	4.38		
PM-10		1.6E-06	0.00045	0.00108	0.012	4.38		
SOx		8.0E-08	0.0000026	0.0046	0.0044	4.38		

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## 2. Emissions of Hazardous Air Pollutants

The following table must be completed to estimate emissions of hazardous air pollutants from the asphalt cement heater. For the total emissions calculations, emission factors 2, 3, 4, or 5 should be chosen based on the fuel type used for the heater. The fuel consumption rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3),(4), or (5)) and the conversion factor listed in column (6) to yield the total emissions of each pollutant.

**Table B.2**

Pollutant	Gallon/hr of fuel used (1)	Emission factors (lbs/ gallon)				Conversion factor (ton/yr)/(lb/hr) (6)	Emissions (lb/hr) (1) x (2 or 3 or 4 or 5)	Total emissions (ton/yr) (1) x (2 or 3 or 4 or 5) x (6)
		Natural gas (2)	LPG (3)	Distillate oil (4)	Residual oil (5)			
Antimony		ND	ND	ND	5.2E-06	4.38		
Arsenic		ND	ND	5.9E-07	9.9E-06	4.38		
Beryllium		ND	ND	3.5E-07	6.3E-07	4.38		
Cadmium		ND	ND	1.5E-06	1.70E-05	4.38		
Chromium		ND	ND	8.1E-06	1.E-05	4.38		
Cobalt		ND	ND	ND	1.4E-05	4.38		
Lead		ND	ND	1.2E-06	1.7E-05	4.38		
Manganese		ND	ND	2E-06	7.3E-06	4.38		
Mercury		ND	ND	4.2E-07	2.5E-06	4.38		
Nickel		ND	ND	2.4E-05	2.4E-04	4.38		
Selenium		ND	ND	ND	5.7E-06	4.38		
Polycyclic organic material		ND	ND	3.1E-06	1.2E-05	4.38		
Formaldehyde		ND	ND	4.5E-05	4.2E-05	4.38		

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### 3. Emissions of State Air Toxics

Emissions of pollutants classified as State Air Toxics have to be quantified. These pollutants are subject to the Arizona Ambient Air Quality Guidelines. There is a significant overlap between pollutants classified as Hazardous Air Pollutants and those classified as State Air Toxics. However, separate tables have been developed to highlight the differences between the regulatory processes for Hazardous Air Pollutants and State Air Toxics. This design is expected to facilitate expeditious permit application review.

The following table must be completed to estimate emissions of state air toxics from the asphalt cement heater. For the total emissions calculations, emission factors 2, 3, 4, or 5 should be chosen based on the fuel type used for the heater. The fuel consumption rate listed in column (1) must be multiplied by the suitable emission factor (column (2),(3), (4), or (5)) and the conversion factor listed in column (6) to yield the total emissions of each pollutant.

**Table B.3**

Pollutant	Gallons/hr of fuel used (1)	Emission factors (lbs/ gallon)				Conversion factor (ton/yr)/(lb/hr) (6)	Emissions (lb/hr) (1) x ( 2 or 3 or 4 or 5)	Total emissions (ton/yr) (1) x (2 or 3 or 4 or 5) x (6)
		Natural gas (2)	LPG (3)	Distillate oil (4)	Residual oil (5)			
Antimony		ND	ND	ND	5.2E-06	4.38		
Arsenic		ND	ND	5.9E-07	9.9E-06	4.38		
Beryllium		ND	ND	3.5E-07	6.3E-07	4.38		
Cadmium		ND	ND	1.5E-06	1.7E-05	4.38		
Chromium		ND	ND	8.1E-06	1E-05	4.38		
Lead		ND	ND	1.2E-06	1.7E-05	4.38		
Mercury		ND	ND	4.2E-07	2.5E-06	4.38		
Nickel		ND	ND	2.4E-05	2.4E-04	4.38		
Selenium		ND	ND	ND	5.7E-06	4.38		
Formaldehyde		ND	ND	4.5E-05	4.2E-05	4.38		

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## C. EMISSIONS FROM PROCESS SUPPORT GENERATORS

Generators and internal combustion engines, which are used in process support, burn different fuels like gasoline or diesel for purposes of generating energy. This combustion process is a possible source for the emission of air pollutants.

### 1. Emissions of CO, VOC, SO<sub>x</sub>, NO<sub>x</sub> and PM-10

The following table must be completed to estimate emission of CO, VOC, SO<sub>x</sub>, NO<sub>x</sub> and PM-10 from the use of generators (internal combustion engines). In the calculation of total emissions, choices 2, 3, or 4 need to be made based on fuel used. The horsepower rating listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (5) to yield the total emissions of each pollutant.

**Please copy this page if you have more than one generator or internal combustion engine.**

**Table C.1**

Pollutant	Horsepower rating (hp) (1)	Emission factors (lb/hp-hr)			Conversion factor (ton/yr)/(lb/hr) (5)	Emissions (lb/hr) (1) x (2 or 3 or 4)	Total emissions (ton/yr) 1 x (2 or 3 or 4) x (5)
		Gasoline (2)	Diesel (<=600hp) (3)	Diesel (>600 hp) (4)			
CO		0.44	0.0067	0.0053	4.38		
VOC		0.022	0.0025	0.0007	4.38		
NO <sub>x</sub>		0.011	0.031	0.024	4.38		
PM-10		0.00072	0.0022	0.00045	4.38		
SO <sub>x</sub>		0.00059	0.002	0.0032	4.38		

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## D. FUGITIVE PM AND PM-10 EMISSIONS

This table must be completed to estimate fugitive emissions from the plant operation. Different operations that contribute to fugitive emissions are listed and their emission factors are tabulated. UC- Uncontrolled process; C- Controlled process. For every source category, all columns corresponding to “uncontrolled process” should be entered. In addition, if a control is used, all corresponding columns should be entered. The maximum throughput rate listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (6) to yield the total emissions for each category of fugitive emissions.

**Table D.1**

Source	Max throughput rate (ton/hr) (1)	Emission factor (PM) (lb/ton of asphalt)		Emission factor (PM-10) (lb/ton of asphalt)		Conversion factor (ton/yr)/(lb/hr) (6)	Total emissions (ton/yr)			
		UC (2)	C (3)	UC (4)	C (5)		PM (UC) (1) x (2) x (6)	PM (C) (1) x (3) x (6)	PM-10 (UC) (1) x (4) x (6)	PM-10 (C) (1) x (5) x (6)
Continuous and batch drop operations		0.0033	0.00033	0.0016	0.00016	4.38				
Transfer operations to feed hopper, elevated bins & weigh hoppers		0.0033	0.00033	0.0016	0.00016	4.38				
Cement transfer to silos		0.0048	1E-05	0.0039	3.4E-06	4.38				
Cement transfer to weigh hoppers		8.1E-05	ND	3.8E-05	ND	4.38				

The number of piles listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (6) to yield the total emissions for each category of fugitive emissions.

Source	No of piles (1)	Emission factors (PM) lb/hr/pile		Emission factor (PM-10) lb/hr/pile		Conversion factor (ton/yr)/(lb/hr) (6)	Total emissions (tpy)			
		UC (2)	C(3)	UC (4)	C(5)		PM (UC) (1)x(2)x(6)	PM (C) (1)x(3)x(6)	PM-10 (UC) (1)x(4)x(6)	PM-10 (C) (1)x(5)x(6)
Wind erosion from aggregate storage piles		0.001	0.00010	0.0005	0.00005	4.38				
Wind erosion from sand storage piles		0.012	0.0012	0.006	0.0006	4.38				

The number of transfer points listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in

column (6) to yield the total emissions for each category of fugitive emissions.

Source	No of transfer/ screening points (1)	Emission factors (PM) lb/hr/point		Emission factor (PM-10) lb/hr/point		Conversion factor (ton/yr)/(lb/hr) (6)	Total emissions (tpy)			
		UC (2)	C(3)	UC (4)	C(5)		PM (UC) (1)x(2)x(6)	PM(C) (1)x(3)x(6)	PM-10 (UC) (1)x(4)x(6)	PM-10 (C) (1)x(5)x(6)
Conveyor transfer points		0.0027	9.3E-05	0.0013	4.5E-05	4.38				
Screening operations		0.03	0.0017	0.014	0.00078	4.38				

The number of vehicle miles traveled per hour listed in column (1) must be multiplied by the suitable emission factor (column (2), (3), or (4) ) and the conversion factor listed in column (6) to yield the total emissions for each category of fugitive emissions.

Source	VMT/hr (1)	Emission factors (PM) lb/VMT		Emission factor (PM-10) lb/VMT		Conversion factor (ton/yr)/(lb/hr) (6)	Total emissions (tpy)			
		UC (2)	C(3)	UC (4)	C(5)		PM (UC) (1)x(2)x(6)	PM (C) (1)x(3)x(6)	PM-10 (UC) (1)x(4)x(6)	PM-10 (C) (1)x(5)x(6)
Vehicle traffic (unpaved roads, transport vehicles)		2.2	0.22	1	0.1	4.38				
Vehicle traffic (unpaved roads, front end loaders)		1.6	0.16	0.7	0.07	4.38				

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## FORM 4: EQUIPMENT LIST

ADEQ needs to be able to identify all pieces of equipment covered under each permit. Use this form to provide a list of all pieces of equipment to be permitted including control equipment and generators (make additional copies if necessary). The list should include **not only the type of equipment, but also the make, model, serial number and manufacture date of asphalt plant, and equipment identification number (if available) of each piece of equipment and a brief description of any reconstruction or modification performed on any of the equipment**

**Please make additional copies of this form if extra space is required.**

[illegible]

Does the applicant operate a crushing and screening facility at the same location?

9 Yes                      9 No

If the answer to the previous question is “Yes”, What percentage of the crushing and screening operation output is supplied to the asphalt operation?  $9 > 50\%$

9 < 50%

**FORM 5: AIR POLLUTION CONTROL EQUIPMENT**

In order for ADEQ to fully evaluate a permit application, the type of air pollution controls utilized must be submitted. This section of the manual is intended to assist the applicant in listing the air pollution controls that are utilized at the plant. Please list all air pollution controls utilized corresponding to the source equipment listed. If there is other equipment that is not listed in the table below, add the equipment under the section title “others.”

SOURCE	AIR POLLUTION CONTROL EQUIPMENT
Rotary Drum Dryer	
Asphalt cement heater	
Haul Roads	
Aggregate piles	
Conveyors	
Internal Combustion Engines	
Others	

**FORM 6: COMPLIANCE PLAN AND CERTIFICATION**

1. Applicant hereby affirms that it is in compliance with all applicable requirements and will continue to comply with such requirements.
2. For all applicable requirements for which the source is out of compliance, the applicant hereby affirms that it will submit a schedule of compliance.
3. For any additional applicable requirements that become effective during the term of the Permit, Applicant affirms that it will meet such requirements on a timely basis.
4. The Applicant hereby affirms that it will submit a compliance certification once each year. The compliance certification shall describe the compliance status of the source with respect to each permit condition and the methods used for determining the compliance status.

***Certification of Compliance and Truth Accuracy and Completeness***

5. This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.
6. I certify that I have knowledge of the facts herein set forth and in this application, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the Arizona Administrative Code, Title 18, Chapter 2 and the conditions of my permit or I will ensure that this responsibility is delegated to the renter or lessee by providing them a copy of the Permit.

Typed or Printed Company Name: \_\_\_\_\_

Official Title of Signer: \_\_\_\_\_

Typed or Printed Name of Signer: \_\_\_\_\_

Signature of Responsible Official: \_\_\_\_\_ Date: \_\_\_\_\_



FORM 7: MOVE NOTICE FORM

STATE OF ARIZONA

NOTICE OF START-UP, MOVE OR STOP FOR  
PORTABLE SOURCES AND MINE EQUIPMENT

General Information

6 List all equipment I.D. numbers and applicable permit numbers 7

1. Company Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City, State, ZIP: \_\_\_\_\_
2. Contact Person: \_\_\_\_\_ Telephone: \_\_\_\_\_
3. Please Check Where Appropriate: CONTRACTOR ☐ OWNER ☐ OPERATOR ☐ OPEN PIT ☐ UNDERGROUND ☐ MILL ☐ QUARRY ☐ HOT PLANT ☐ SMELTER ☐ AGGREGATE PLANT ☐ BATCH PLANT ☐ LEACH PLANT ☐ OTHER ☐ \_\_\_\_\_
4. Mine/Plant Name: \_\_\_\_\_
5. Current Location: (Nearest City/Town) \_\_\_\_\_ (County) \_\_\_\_\_ ZIP Code \_\_\_\_\_  
RANGE: \_\_\_\_\_ TOWNSHIP: \_\_\_\_\_ SECTION: \_\_\_\_\_
6. New Location: (Nearest City/Town) \_\_\_\_\_ (County) \_\_\_\_\_ ZIP Code \_\_\_\_\_  
RANGE: \_\_\_\_\_ TOWNSHIP: \_\_\_\_\_ SECTION: \_\_\_\_\_
- Contact Person On-Site: \_\_\_\_\_  
Driving Directions to New Location: \_\_\_\_\_  
\_\_\_\_\_
7. In compliance with Titles 18 and 27 of the Arizona Administrative Code, we are submitting this written notice to the State Mine Inspector and/or the Department of Environmental Quality of our intent to: START ☐ STOP ☐ MOVE ☐ an operation.
8. Today's Date \_\_\_\_\_ Startup Date \_\_\_\_\_ Move Date \_\_\_\_\_  
(MM/DD/YY): \_\_\_\_\_ (MM/DD/YY) \_\_\_\_\_ (MM/DD/YY) \_\_\_\_\_

**Environmental Quality Data**

9. Description of Equipment: \_\_\_\_\_
10. ADEQ Permit Number: (List all that apply) \_\_\_\_\_ 11. Company Equipment Number: (List separately) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. Other Equipment Used: (Supply a Complete Equipment Listing and Equipment Layout Diagram. Use Additional Pages as Necessary.) \_\_\_\_\_  
\_\_\_\_\_

### Mine Inspector Data

13. Entry Date: \_\_\_\_\_ 14. PIN#: \_\_\_\_\_ 15. State ID#: \_\_\_\_\_ 16. MSHA ID#: \_\_\_\_\_
17. Name of Primary Official: \_\_\_\_\_ 18. Name of Designated Safety Official: \_\_\_\_\_
19. Names of Other Officials: \_\_\_\_\_
20. Number of Employees (Including On-Site Office Staff): \_\_\_\_\_ 21. Principal Product: \_\_\_\_\_
22. Would You Like Our Education & Training Division To Assist You With Your Mine Safety Training?: \_\_\_\_\_
23. If Your Operation Will Be Using Hazardous Materials (e.g. Cyanide, Acid, Etc..), Please List Below: \_\_\_\_\_
- 

### Check All Agencies Which Were Notified:

☐ Arizona State Mine Inspector, 1700 W. Washington, Ste 400  
Phoenix, AZ 85007. (602) 542-5971

☐ Arizona Department of Environmental Quality, Office  
Of Air Quality. 3003, N. Central Ave.,  
Phoenix, AZ- 85012-290703 (602) 207-2316

## **APPENDIX 2**

**APPENDIX 2: ASPHALT PLANT REGULATIONS**  
**Arizona Administrative Code**

Title 18, Ch. 2

Department of Environmental Quality - Air Pollution Control

**TITLE 18. ENVIRONMENTAL QUALITY**  
**CHAPTER 2. AIR POLLUTION CONTROL**  
**ASPHALT PLANT APPLICATION PACKET**

**R18-2-702. General provisions**

- A. The provisions of this Article shall only apply to existing sources.
- B. Except as otherwise provided in this Article relating to specific types of sources, the opacity of any plume or effluent:
  - 1. Shall not be greater than 40 percent, and
  - 2. Shall be determined by reference Method 9 in 40 CFR 60, Appendix A.
- C. Where the presence of uncombined water is the only reason for the exceedance of any visible emissions requirement in this Article, such exceedance shall not constitute a violation.
- D. A person owning or operating an air pollution source may ask the Director for a determination on meeting the requirements of the applicable opacity standard.
  - 1. The owner or operator shall submit the written reports of the results of the performance tests, the opacity observation results, and observer certification.
  - 2. If the Director finds that the facility is in compliance with all applicable standards for the performance test and still fails to meet the applicable opacity standard, he shall notify the owner or operator of the finding.
  - 3. The owner or operator may petition the Director within ten days of receipt of notification, asking the Director to make an appropriate adjustment to the opacity standard for the facility.
  - 4. The Director shall grant the petition after public notice and opportunity for public hearing takes place, and upon a demonstration by the owner or operator that:
    - a. The affected facility and the associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance test.
    - b. The performance tests were performed under the conditions established by the Director.
    - c. The affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity requirement.
  - 5. The Director shall establish an opacity standard for the affected facility based on the determination made in paragraph (4) of this subsection. The opacity standard shall be set at a level indicated by the performance and opacity tests, providing that the source will be able to meet the mass or concentration

standard and the opacity standard at all times. Such opacity standard shall be incorporated as a condition of the permit for the affected facility.

- 6. The Director shall publish the opacity standard once in one or more newspapers of general circulation in the county or counties concerned.
- E. The process weight rate utilized in this Article shall be determined as follows:
  - 1. For continuous or long run, steady-state process sources, the process weight rate shall be the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.
  - 2. For cyclical or batch process sources, the process weight rate shall be the total process weight for a period which covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such period.

**R18-2-708. Standards of performance for existing asphalt concrete plants**

- A. Fixed asphalt concrete plants and portable asphalt concrete plants shall meet the standards set forth in this Section.
- B. No person shall cause, allow or permit the discharge of particulate matter into the atmosphere in any one hour from any existing asphalt concrete plant in total quantities in excess of the amounts calculated by one of the following equations:
  - 1. For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:
$$E = 4.10P^{0.67}$$
where:  
E = the maximum allowable particulate emission rate in pounds-mass per hour.  
P = the process weight rate in tons-mass per hour.
  - 2. For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:
$$E = 55.0P^{0.11-40}$$
where "E" and "P" are defined as indicated in paragraph (1) of this subsection.
- C. For reference purposes only, the equations given above are plotted in Figure 2, Appendix 11. The emission values

obtained from the graph are approximately correct for the process weight rates shown. However, the actual values shall be calculated from the applicable equations and rounded off to two decimal places.

- D. For purposes of this Section, the total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.
- E. Liquid fuel containing greater than 0.9 percent sulfur by weight shall not be utilized for asphalt concrete plants subject to this Section.
- F. Solid fuel containing greater than 0.5 percent sulfur by weight shall not be utilized for asphalt concrete plants subject to this Section.
- G. The test methods and procedures required under this Section are:
  - 1. The reference methods given in 40 CFR 60, Appendix A shall be used to determine compliance with the standards prescribed in subsection (B).
    - a. Method 5 for the concentration of particulate matter and the associated moisture content.
    - b. Method 1 for sample and velocity traverses.
    - c. Method 2 for velocity and volumetric flow rate.
    - d. Method 3 for gas analysis.
  - 2. For Method 5, the sampling time for each run shall be at least 60 minutes and the sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min), except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the Director.
  - 3. Percent sulfur in liquid fuel shall be determined by ASTM method D-129-91 (Test Method for Sulfur in Petroleum Products) (General Bomb Method), and the percent sulfur in solid fuel shall be determined by ASTM method D-3177-89 (Test Method for Total Sulfur in the Analysis Sample of Coal and Coke).

#### **R18-2-901. Standards of performance for new stationary sources**

Except as provided in R18-2-902 through R18-2-905, 40 CFR 60.1 through 60.748, and accompanying appendices, the federal standards of performance for new stationary sources adopted as of July 1, 1991, (and no future editions) as listed below, are incorporated herein by reference, and are on file with the Office of the Secretary of State and shall be applied by the Department.

- 11. Subpart I - Hot Mix Asphalt Facilities.

### **40 CFR Chapter 1 (7-1-92 Edition)**

#### **Subpart I ) Standards of Performance for Hot Mix Asphalt Facilities**

##### **§ 60.90 Applicability and designation of affected facility.**

- (a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate, systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.
- (b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

[42 FR 37936, July 25, 1977, as amended at 51 FR 12325, Apr. 10, 1986]

##### **§ 60.91 Definitions**

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in Subpart A of this part.

- (a) *Hot mix asphalt facility* means any facility, as described in § 60.90, used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

[51 FR 12325, Apr. 10, 1986]

##### **§ 60.92 Standard for particulate matter.**

- (a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provision os of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:
  - (1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).
  - (2) Exhibit 20 percent opacity, or greater.

[39 FR 9314, Mar. 8, 1974, as amended at 40 FR 86259, Oct. 6, 1975]

##### **§ 60.93 Test methods and procedures.**

- (a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of this part or other methods and procedures as specified in this section, except as provided in B 60.8(b).
- (b) The owner or operator shall determine compliance with the particulate matter standards in § 60.92 as follows:
  - (1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).
  - (2) Method 9 and the procedures in § 60.11 shall be used to determine opacity.



[54 FR 6667, Feb. 14, 1989]

#### **R18-2-601. General**

For purposes of this Article, any source of air contaminants which due to lack of an identifiable emission point or plume cannot be considered a point source, shall be classified as a nonpoint source. In applying this criteria, such items as air-curtain destructors, heater-planners, and conveyor transfer points shall be considered to have identifiable plumes. Any affected facility subject to regulation under Article 7 of this Chapter or A.A.C. Title 9, Chapter 3, Article 8, shall not be subject to regulation under this Article.

#### **R18-2-604. Open areas, dry washes or riverbeds**

- A.** No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.
- B.** No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.
- C.** No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and three-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

#### **R18-2-605. Roadways and streets**

- A.** No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down detouring or by other reasonable means.
- B.** No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as

wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

#### **R18-2-606. Material handling**

No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

#### **R18-2-607. Storage piles**

- A.** No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.
- B.** Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

#### **R18-2-310. Excess emissions**

- A.** Emissions in excess of an applicable emission limitation contained in this Chapter or in the terms of a permit shall constitute a violation. For all situations that constitute an emergency as defined in R18-2-306(E), the affirmative defense and reporting requirements contained in that provision shall apply. In all other circumstances, it shall be an affirmative defense if the owner or operator of the source has complied with the reporting requirements of subsection © of this Section in a timely manner, and has demonstrated all of the following:
  - 1. The excess emissions resulted from a sudden and unavoidable breakdown of the process or the control equipment; resulted from unavoidable conditions during startup or shutdown; resulted from unavoidable conditions during an upset of operations; or that greater or more extended excess emissions would result unless scheduled maintenance is performed;
  - 2. The air pollution control equipment, process equipment, or processes were at all times maintained and operated, in a manner consistent with good practice for minimizing emissions;
  - 3. Where repairs were required, such repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded and off-shift labor and overtime were utilized where practical to insure that such repairs were made as expeditiously

as possible. If off-shift labor and overtime were not utilized, the owner or operator satisfactorily demonstrated that such measures were impractical;

4. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;
  5. All feasible steps were taken to minimize the impact of the excess emissions on potential violations of ambient air quality standards;
  6. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and,
  7. During the period of excess emissions there were no measured violations of the ambient air quality standards established in Article 2 of this Chapter which could be attributed to the emitting source.
- B.** It shall be the burden of the owner or operator of the source to demonstrate, through submission of the data and information required by this Section, that all reasonable and practicable measures within the owner or operator's control were implemented to prevent the occurrence of excess emissions.
- C.** Excess emissions shall be reported as follows:
1. The owner or operator of any source issued a permit shall report to the Director any emissions in excess of the limits established by this Chapter or the applicable permit. Such report shall be in two parts as specified below:
    - a. Notification by telephone or facsimile within 24 hours of the time when the owner or operator first learned of the occurrence of excess emissions including all available information from paragraph (2) of this subsection.
    - b. Detailed written notification within 72 hours of the notification pursuant to subparagraph (a) of this paragraph.
  2. The excess emissions report shall contain the following information:
    - a. The identity of each stack or other emission point where the excess emissions occurred.
    - b. The magnitude of the excess emission expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions.
    - c. The time and duration or expected duration of the excess emissions.
    - d. The identity of the equipment from which the excess emissions emanated.
    - e. The nature and cause of such emissions.
    - f. If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions.
    - g. The steps that were or are being taken to limit the excess emissions. If the source's permit contains procedures governing source operation during periods of start-up or malfunction and the excess emissions resulted from start-up or

malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

- D.** In the case of continuous or recurring excess emissions, the notification requirements of this Section shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to subsection (C)(1)(b) of this Section.
- E.** Information required to be submitted by this Section shall be summarized and reported to the Director in accordance with provisions contained in the applicable permit issued pursuant to the requirements of this Chapter.

#### **R18-2-311. Test methods and procedures**

- A.** Except as otherwise specified in this Chapter, the applicable procedures and testing methods contained in the Arizona Testing Manual; 40 CFR 52, Appendices D and E; 40 CFR 60, Appendices A through F; and 40 CFR 61, Appendices B and C shall be used to determine compliance with the requirements established in this Chapter or contained in permits issued pursuant to this Chapter.
- B.** Except as otherwise provided in this subsection the opacity of visible emissions shall be determined by Reference Method 9 of the Arizona Testing Manual. A permit may specify a method, other than Method 9, for determining the opacity of emissions from a particular emissions unit, if the method has been promulgated by the Administrator in 40 CFR 60, Appendix A.
- C.** Except as otherwise specified in this Chapter, the heat content of solid fuel shall be determined according to ASTM method D-3176-89, (Practice for Ultimate Analysis of Coal and Coke) and ASTM method D-2015-91, (Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter).
- D.** Except for ambient air monitoring and emissions testing required under Articles 9 and 11 of this Chapter, alternative and equivalent test methods in any test plan submitted to the Director may be approved by the Director for the duration of that plan provided that the following three criteria are met:
1. The alternative or equivalent test method measures the same chemical and physical characteristics as the test method it is intended to replace.
  2. The alternative or equivalent test method has substantially the same or better reliability, accuracy, and precision as the test method it is intended to replace.
  3. Applicable quality assurance procedures are followed in accordance with the Arizona Testing Manual, 40 CFR 60 or other quality assurance methods which are consistent with principles contained in the Arizona

Testing Manual or 40 CFR 60 as approved by the Director.

#### **R18-2-312. Performance tests**

- A.** Within 60 days after a source subject to the permit requirements of this Article has achieved the capability to operate at its maximum production rate on a sustained basis but no later than 180 days after initial start-up of such source and at such other times as may be required by the Director, the owner or operator of such source shall conduct performance tests and furnish the Director a written report of the results of the tests.
- B.** Performance tests shall be conducted and data reduced in accordance with the test method and procedures contained in the Arizona Testing Manual unless the Director:
  - 1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology,
  - 2. Approves the use of an equivalent method,
  - 3. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance, or
  - 4. Waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Director's satisfaction that the source is in compliance with the standard.
  - 5. Nothing in this Section shall be construed to abrogate the Director's authority to require testing.
- C.** Performance tests shall be conducted under such conditions as the Director shall specify to the plant operator based on representative performance of the source. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions of performance tests unless otherwise specified in the applicable standard.
- D.** The owner or operator of a permitted source shall provide the Director two weeks prior notice of the performance test to afford the Director the opportunity to have an observer present.
- E.** The owner or operator of a permitted source shall provide, or cause to be provided, performance testing facilities as follows:
  - 1. Sampling ports adequate for test methods applicable to such facility.
  - 2. Safe sampling platform(s).
  - 3. Safe access to sampling platform(s).
  - 4. Utilities for sampling and testing equipment.
- F.** Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable

portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the Director's approval, be determined using the arithmetic means of the results of the two other runs. If the Director, or the Director's designee is present, tests may only be stopped with the Director's or such designee's approval. If the Director, or the Director's designee is not present, tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the operator's control. Termination of testing without good cause after the first run is commenced shall constitute a failure of the test.

- G.** Except as provided in Subsection (H) compliance with the emission limits established in this Chapter or as prescribed in permits issued pursuant to this Chapter shall be determined by the performance tests specified in this Section or in the permit.
- H.** In addition to performance tests specified in this Section, compliance with specific emission limits may be determined by:
  - 1. Opacity tests.
  - 2. Emission limit compliance tests specifically designated as such in the regulation establishing the emission limit to be complied with.
  - 3. Continuous emission monitoring, where applicable quality assurance procedures are followed and where it is designated in the permit or in an applicable requirement to show compliance.
- I.** Nothing in this Section shall be so construed as to prevent the utilization of measurements from emissions monitoring devices or techniques not designated as performance tests as evidence of compliance with applicable good maintenance and operating requirements.

#### **R18-2-315. Posting of permit**

- A.** Any person who has been granted an individual or general permit shall post such permit, or a certificate of permit issuance on location where the equipment is installed in such a manner as to be clearly visible and accessible. All equipment covered by the permit shall be clearly marked with one of the following:
  - 1. The current permit number.
  - 2. A serial number or other equipment number that is also listed in the permit to identify that piece of equipment.
- B.** A copy of the complete permit shall be kept on the site.

#### **R18-2-327. Annual emissions inventory questionnaire**

- A.** Every source subject to a permit requirement under this Chapter shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Director makes the inventory form available, whichever occurs later, and shall include emission information for the previous calendar year. These requirements apply whether

or not a permit has been issued and whether or not a permit application has been filed.

**B.** The questionnaire shall be on a form provided by the Director and shall include the following information:

1. The source's name, description, mailing address, contact person and contact person phone number, and physical address and location, if different than the mailing address.
2. Process information for the source, including design capacity, operations schedule, and emissions control devices, their description and efficiencies.
3. The actual quantity of emissions from permitted emission points and fugitive emissions as provided in the permit, including documentation of the method of measurement, calculation or estimation, determined pursuant to subsection © of this Section, of the following regulated air pollutants:
  - a. Any single regulated air pollutant in a quantity greater than one ton or the amount listed for the pollutant in subparagraph (a) of the definition of "significant" in R18-2-101, whichever is less.
  - b. Any combination of regulated air pollutants in a quantity greater than 2½ tons.

**C.** Actual quantities of emissions shall be determined using the following emission factors or data:

1. Whenever available, emissions estimates shall either be calculated from continuous emissions monitors certified pursuant to 40 CFR Part 75, Subpart C and referenced appendices, as published in the Federal Register on January 11, 1993 (and no later editions) which is incorporated herein by reference, and is on file with the Department and the Secretary of State, or data quality assured pursuant to Appendix F of 40 CFR Part 60.
2. When sufficient data pursuant to (C)(1) is not available, emissions estimates shall be calculated from data from source performance tests conducted pursuant to R18-2-312 in the calendar year being reported or, when not available, conducted in the most recent calendar year representing the operating conditions of the year being reported.
3. When sufficient data pursuant to (C)(1) or (C)(2) is not available, emissions estimates shall be calculated using emissions factors from EPA Publication No. AP-42 "Compilation of Air Pollutant Emission Factors", Volume I: Stationary Point and Area Sources, Fourth Edition, supplements A through F, 1985, U.S. Environmental Protection Agency, Research Triangle Park, NC. (GPO Order No. 055-000-00251-7), (and no future editions) which is incorporated herein by reference and is on file with the Department of Environmental Quality and the Office of Secretary of State. AP-42 can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, (202) 783-3238.
4. When sufficient data pursuant to (C)(1) through (C)(3) is not available, emissions estimates shall be calculated from material balance using engineering knowledge of process.

5. When sufficient data pursuant to (C)(1) through (C)(4) is not available, emissions estimates shall be calculated by equivalent methods approved by the Director. The Director shall only approve methods that are demonstrated as accurate and reliable as the applicable method in paragraphs (1) through (4) of this subsection.

**D.** Actual quantities of emissions calculated under subsection © of this Section shall be determined on the basis of actual operating hours, production rates, in-place process control equipment, operational process control data, and types of materials processed, stored, or combusted.

**E.** An amendment to an annual emission inventory questionnaire, containing the documentation required by paragraph (B)(3) of this Section, shall be submitted to the Director by any source whenever it discovers or receives notice, within two years of the original submittal, that incorrect or insufficient information was submitted to the Director by a previous questionnaire. If the incorrect or insufficient information resulted in an incorrect annual emissions fee, the Director shall require that additional payment be made or shall apply an amount as a credit to a future annual emissions fee. The submittal of an amendment under this subsection shall not subject the owner or operator to an enforcement action or a civil or criminal penalty if the original submittal of incorrect or insufficient information was due to reasonable cause and not wilful neglect.

**F.** The Director may require submittal of supplemental emissions inventory questionnaires for air contaminants pursuant to A.R.S. §§ 49-422, 424, and 426.03 through 426.08.

#### **R18-2-324. Portable sources**

- A.** A portable source that will operate for the duration of its permit solely in one county that has established a local air pollution control program pursuant to A.R.S. § 49-479 shall obtain a permit from that county. A portable source with a county permit, shall not operate in any other county.
- B.** A portable source which has a county permit but proposes to operate outside the county shall obtain a permit from the Director. Upon issuance of a permit by the Director, the county shall terminate the county permit for that source. Before commencing operation in the new county, the source shall notify the Director and the control officer who has jurisdiction over the geographic area that includes the new location according to subsection (D) of this Section.
- C.** An owner of portable source equipment which requires a permit under this Chapter shall obtain the permit prior to renting or leasing said equipment. This permit shall be provided by the owner to the renter or lessee and the renter or lessee shall be bound by the permit provisions. In the event a copy of the permit is not provided to the renter or lessee, both the owner and the lessee or renter shall be responsible for the operation of this equipment in compliance with the permit conditions and any violations thereof.
- D.** A portable source may be transferred from one location to

another provided that the owner or operator of such equipment notifies the Director and any control officer who has jurisdiction over the geographic area that includes the new location of the transfer by certified mail at least ten working days before the transfer. The notification required under this subsection shall include:

1. A description of the equipment to be transferred including the permit number for such equipment;
  2. A description of the present location;
  3. A description of the location to which the equipment is to be transferred, including the availability of all utilities, such as water and electricity, necessary for the proper operation of all control equipment;
  4. The date on which the equipment is to be moved; and
  5. The date on which operation of the equipment will begin at the new location.
- E. Any permit for a portable source shall contain conditions that will assure compliance with all applicable requirements at all authorized locations.

#### **R18-2-201. Particulate matter**

- A. The primary ambient air quality standards for particulate matter are:
  1. 50 micrograms per cubic meter of  $PM_{10}$  ) annual arithmetic mean concentration.
  2. 150 micrograms per cubic meter of  $PM_{10}$  ) 24-hour average concentration.
- B. The secondary ambient air quality standards for particulate matter are:
  1. 50 micrograms per cubic meter of  $PM_{10}$  ) annual arithmetic mean concentration.
  2. 150 micrograms per cubic meter of  $PM_{10}$  ) 24-hour average concentration.
- C. The primary and secondary annual ambient air quality standards for  $PM_{10}$  shall be considered attained when the expected annual arithmetic mean concentration, as determined in accordance with 40 CFR 50, Appendix K, is less than or equal to 50 micrograms per cubic meter.
- D. The primary and secondary 24-hour ambient air quality standards for  $PM_{10}$  shall be considered attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter, as determined in accordance with 40 CFR 50, Appendix K, is less than or equal to one.

#### **R18-2-202. Sulfur oxides (sulfur dioxide)**

- A. The primary ambient air quality standards for sulfur oxides, measured as sulfur dioxide, are:
  1. 80 micrograms per cubic meter (0.03 ppm) ) annual arithmetic mean.
  2. 365 micrograms per cubic meter (0.14 ppm) ) maximum 24-hour concentration not to be exceeded more than once per year.
- B. The secondary ambient air quality standard for sulfur oxides, measured as sulfur dioxide is 1,300 micrograms per cubic meter (0.5 ppm) maximum 3-hour concentration not to be exceeded more than once per year.

#### **R18-2-203. Ozone**

- A. The primary ambient air quality standard for ozone is 0.12 ppm (235 micrograms per cubic meter).
- B. The secondary ambient air quality standard for ozone is 0.12 ppm (235 micrograms per cubic meter).
- C. The standards are attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm (235 micrograms per cubic meter) is less than or equal to one, as determined by 40 CFR 50, Appendix H.

#### **R18-2-204. Carbon monoxide**

- A. The primary ambient air quality standards for carbon monoxide are:
  1. 9 parts per million (10 milligrams per cubic meter) ) maximum 8-hour concentration not to be exceeded more than once per year.
  2. 35 parts per million (40 milligrams per cubic meter) ) maximum 1-hour concentration not to be exceeded more than once per year.
- B. An 8-hour average shall be considered valid if at least 75 percent of the hourly averages for the 8-hour period are available. In the event that only six or seven hourly averages are available, the 8-hour average shall be computed on the basis of the hours available using six or seven as the divisor.
- C. When summarizing data for comparison with the standards, averages shall be stated to one decimal place. Comparison of the data with the levels of the standards in parts per million shall be made in terms of integers with fractional parts of 0.5 or greater rounding up.

#### **R18-2-205. Nitrogen dioxide**

- A. The primary ambient air quality standard for nitrogen dioxide is 0.053 parts per million (100 micrograms per cubic meter) ) annual arithmetic mean.
- B. The secondary ambient air quality standard for nitrogen dioxide is 0.053 parts per million (100 micrograms per cubic meter) ) annual arithmetic mean.
- C. The standards are attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm, rounded to three decimal places, with fractional parts equal to or greater than 0.0005 ppm rounded up. To demonstrate attainment, an annual mean shall be based upon hourly data that is at least 75 percent complete or upon data derived from the manual methods, that is at least 75 percent complete for the scheduled sampling days in each calendar quarter.

#### **R18-2-206. Lead**

- A. The primary ambient air quality standard for lead and its compounds, measured as elemental lead, is 1.5 micrograms per cubic meter ) maximum arithmetic mean averaged over a calendar quarter.
- B. The secondary ambient air quality standard for lead and its compounds, measured as elemental lead, is 1.5

micrograms per cubic meter ) maximum arithmetic mean averaged over a calendar quarter.

**R18-2-207. Renumbered**

**R18-2-208. Reserved**

**R18-2-209. Reserved**

**R18-2-210. Attainment, nonattainment, and unclassifiable area designations**

40 CFR 81.303 as amended as of July 1, 1992 (and no future editions) is incorporated herein by reference and is on file with the Department of Environmental Quality and the Office of Secretary of State.

**R18-2-211. Reserved**

**R18-2-212. Reserved**

**R18-2-213. Reserved**

**R18-2-214. Reserved**

**R18-2-215. Ambient air quality monitoring methods and procedures**

- A. Only those methods which have been either designated by the Administrator as reference or equivalent methods or approved by the Director shall be used to monitor ambient air.
- B. Quality assurance, monitor siting, and sample probe installation procedures shall be in accordance with procedures described in the Appendices to 40 CFR 58.
- C. The Director may approve other procedures upon a finding that the proposed procedures are substantially equivalent or superior to procedures in the Appendices to 40 CFR 58.

**R18-2-216. Interpretation of ambient air quality standards and evaluation of air quality data**

- A. Unless otherwise specified, interpretation of all ambient air quality standards contained in this Article shall be in accordance with 40 CFR 50.
- B. The evaluation of air quality data in terms of procedure, methodology, and concept is to be consistent with methods described in Appendix 10 to this Chapter.

**R18-2-217. Designation and classification of attainment areas**

- A. All attainment and unclassified areas or parts thereof shall be classified as either Class I, Class II or Class III.
- B. All of the following areas which were in existence on August 7, 1977, including any boundary changes to those areas which occurred subsequent to the date of enactment of the Clean Air Act Amendments of 1977 and before March 12, 1993, shall be Class I areas irrespective of

attainment status and shall not be redesignated:

- 1. International parks.
- 2. National wilderness areas which exceed 5,000 acres in size.
- 3. National memorial parks which exceed 5,000 acres in size.
- 4. National parks which exceed 6,000 acres in size.

**C. The following areas shall be designated only as Class I or II:**

- 1. An area which as of August 7, 1977, exceeds 10,000 acres in size and is one of the following:
  - a. A national monument.
  - b. A national primitive area.
  - c. A national preserve.
  - d. A national recreational area.
  - e. A national wild and scenic river.
  - f. A national wildlife refuge.
  - g. A national lakeshore or seashore.
- 2. A national park or national wilderness area established after August 7, 1977, which exceeds 10,000 acres in size.

**D. All other areas shall be Class II areas unless redesignated under subsections (E) or (F) of this Section.**

**E. The Governor or the Governor's designee may redesignate areas of the state as Class I or Class II, provided that the following requirements are fulfilled:**

- 1. At least one public hearing is held in or near the area affected;
- 2. Other states, Indian governing bodies and Federal Land Managers, whose land may be affected by the proposed redesignation are notified at least 30 days prior to the public hearing.
- 3. A discussion document of the reasons for the proposed redesignation including a description and analysis of health, environmental, economic, social and energy effects of the proposed redesignation is prepared by the Governor or the Governor's designee. The discussion document shall be made available for public inspection at least 30 days prior to the hearing and the notice announcing the hearing shall contain appropriate notification of the availability of such discussion document.
- 4. Prior to the issuance of notice respecting the redesignation of an area which includes any Federal lands, the Governor or the Governor's designee has provided written notice to the appropriate Federal Land Manager and afforded the Federal Land Manager adequate opportunity, not in excess of 60 days, to confer with the state respecting the redesignation and to submit written comments and recommendations. The Governor or the Governor's designee shall publish a list of any inconsistency between such redesignation and such recommendations, together with the reasons for making such redesignation against the recommendation of the Federal Land Manager, if any Federal Land Manager has submitted written comments and recommendations.
- 5. The redesignation is proposed after consultation with the elected leadership of local governments in the area

covered by the proposed redesignation.

6. The redesignation is submitted to the Administrator as a revision to the SIP.

**F.** The Governor or the Governor's designee may redesignate areas of the state as Class III if all of the following criteria are met:

1. Such redesignation meets the requirements of subsection (E) of this Section.
2. Such redesignation has been approved after consultation with the appropriate committee of the legislature if it is in session or with the leadership of the legislature if it is not in session.
3. The general purpose units of local government representing a majority of the residents of the area to be redesignated concur in the redesignation.
4. Such redesignation shall not cause, or contribute to, concentration of any air pollutant which exceeds any maximum allowable increase or maximum allowable concentration permitted under the classification of any area.
5. For any new major source as defined in R18-2-401 or a major modification of such source which may be permitted to be constructed and operated only if the area in question is redesignated as Class III, any permit application or related materials shall be made available for public inspection prior to a public hearing.
6. The redesignation is submitted to the Administrator as a revision to the SIP.

**G.** A redesignation shall not be effective until approved by the Administrator as part of an applicable implementation plan.

**H.** Lands within the exterior boundaries of Indian reservations may be redesignated only by the appropriate Indian governing body.

#### **R18-2-218. Limitation of pollutants in classified attainment areas**

**A.** Areas designated as Class I, II, or III shall be limited to the following increases in air pollutant concentrations occurring over the baseline concentration, provided that for any period other than an annual period, the applicable maximum allowable increase may be exceeded once per year at any one location:

##### **CLASS I**

Maximum Allowable Increase  
(Micrograms per cubic meter)  
Total suspended particulates:

Annual geometric mean ..... 5  
24-hour maximum ..... 10

Sulfur dioxide:

Annual arithmetic mean ..... 2  
24-hour maximum ..... 5  
3-hour maximum ..... 25

Nitrogen dioxide:

Annual arithmetic mean ..... 2.5

##### **CLASS II**

Total suspended particulates:

Annual geometric mean ..... 19

24-hour maximum ..... 37

Sulfur dioxide:

Annual arithmetic mean ..... 20

24-hour maximum ..... 91

3-hour maximum ..... 512

Nitrogen dioxide:

Annual arithmetic mean ..... 25

##### **CLASS III**

Total suspended particulates:

Annual geometric mean ..... 37

24-hour maximum ..... 75

Sulfur dioxide:

Annual arithmetic mean ..... 40

24-hour maximum ..... 182

3-hour maximum ..... 700

Nitrogen dioxide:

Annual arithmetic mean ..... 50

**B.** The baseline concentration shall be that ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date.

1. The major source baseline date is:
  - a. January 6, 1975 for sulfur dioxide and particulate matter; and
  - b. February 8, 1988 for nitrogen dioxide.
2. The minor source baseline date shall be the earliest date after August 7, 1977 for sulfur dioxide and particulate matter, and February 8, 1988 for nitrogen dioxide, that either:
  - a. A major source as defined in R18-2-401 or a major modification submits a complete permit application to the Administrator under 40 CFR 52.21; or
  - b. A major source as defined in R18-2-401 or a major modification submits a complete permit application to the Director under R18-2-304(E)(2) or R18-2-406.
3. A baseline concentration shall be determined for each pollutant for which there is a minor source baseline date and shall include both:
  - a. The actual emissions representative of sources in existence on the minor source baseline date, except as provided in paragraph (4) of this subsection; and
  - b. The allowable emissions of major sources as defined in R18-2-401 which commenced construction before the major source baseline date, but were not in operation by the applicable minor source baseline date.
4. The following shall not be included in the baseline concentration and shall affect the applicable maximum allowable increase:
  - a. Actual emissions from any major source as defined in R18-2-401 on which construction commenced after the major source baseline date; and
  - b. Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.

**C.** The baseline date shall be established for each pollutant for

which maximum allowable increases or other equivalent measures have been established if both:

1. The area in which the proposed source or modification would construct is designated as attainment or unclassifiable for the pollutant on the date of its complete application under either subsection (B)(2)(a) or (b); and
  2. In the case of a major source as defined in R18-2-401, the pollutant would be emitted in significant amounts, or in the case of a major modification, there would be a significant net emissions increase of the pollutant.
- D.** The baseline area shall be any area, within any intrastate area designated as attainment or unclassifiable, in which the major source as defined in R18-2-401 or a major modification establishing the minor source baseline date would construct or would have an air quality impact equal to or greater than  $1 \mu\text{g}/\text{m}^3$  (annual average) of the pollutant for which the minor source baseline date is established. Area redesignations under R18-2-217 cannot intersect or be smaller than the area of impact of any new major source as defined in R18-2-401 or a major modification which either:
1. Establishes a minor source baseline date; or
  2. Is subject to either 40 CFR 52.21 or R18-2-406 and would be constructed in Arizona.
- E.** The maximum allowable concentration of any air pollutant in any area to which subsection (A) of this Section applies shall not exceed a concentration for each pollutant equal to the concentration permitted under the ambient air quality standards contained in this Article.
- F.** For purposes of determining compliance with the maximum allowable increases in ambient concentrations of an air pollutant, the following concentrations of such pollutant shall not be taken into account:
1. Concentration of such pollutant attributable to the increase in emissions from major and stationary sources which have converted from the use of petroleum products, or natural gas, or both, by reason of a natural gas curtailment order which is in effect under the provisions of Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, 15 U.S.C. § 792, over the emissions from such sources before the effective date of such order;
  2. The concentration of such pollutant attributable to the increase in emissions from major and stationary sources which have converted from using gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act, 16 U.S.C. §§ 792 - 825r, over the emissions from such sources before the effective date of the natural gas curtailment plan;
  3. Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary activities of a new or altered source;
  4. The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration; and
  5. Concentrations attributable to the temporary increase in emissions of sulfur dioxide, nitrogen oxides or particulate matter from major sources as defined in R18-2-401 when the following conditions are met:
    - a. The permit issued to such sources specifies the time period during which the temporary emissions increase of sulfur dioxide, nitrogen oxides or particulate matter would occur. Such time period shall not be renewable and shall not exceed two years unless a longer period is specifically approved by the Director.
    - b. No emissions increase shall be approved which would either:
      - i. Impact any portion of any Class I area or any portion of any other area where an applicable incremental ambient standard is known to be violated in that portion; or
      - ii. Cause or contribute to the violation of a state ambient air quality standard.
    - c. The permit issued to such sources specifies that at the end of the time period described in subparagraph (a) of this paragraph, the emissions levels from the sources would not exceed the levels occurring before the temporary emissions increase was approved.
6. The exception granted with respect to increment consumption under paragraphs (1) and (2) of subsection (F) shall not apply more than five years after the effective date of the order or natural gas curtailment plan on which the exception is based.
- G.** If the Director or the Administrator determines that the SIP is substantially inadequate to prevent significant deterioration or that an applicable maximum allowable increase as specified in subsection (A) of this Section is being violated, the SIP shall be revised to correct the inadequacy or the violation. The SIP shall be revised within 60 days of such a finding by the Director or within 60 days following notification by the Administrator, or by such later date as prescribed by the Administrator after consultation with the Director.
- H.** The Director shall review the adequacy of the SIP on a periodic basis and within 60 days of such time as information becomes available that an applicable maximum allowable increase is being violated.
- R18-2-219. Violations**
- A. One exceedance per year of the ambient air quality standards prescribed in this Article shall be allowed for each pollutant at each monitoring site.
  - B. Each additional exceedance at each site shall constitute a separate violation of ambient air quality standards.
  - C. The provisions of subsection (A) of this Section shall not apply to any of the following:
    1. The annual and quarterly standards.
    2. The standards for ozone prescribed in R18-2-203.
    3. The primary and secondary 24-hour  $\text{PM}_{10}$  standards prescribed in R18-2-201.
- R18-2-220. Air pollution emergency episodes**
- A. Procedures shall be implemented by the Director in order



to prevent the occurrence of ambient air pollutant concentrations which would cause significant harm to the health of persons, as specified in subsection (B)(4) of this Section. The procedures and actions required for each stage are described in the Department's "Procedures for Prevention of Emergency Episodes," amended as of October 18, 1988 (and no future editions), which is incorporated herein by reference and on file with the Office of the Secretary of State.

- B. The following stages are identified by air quality criteria in order to provide for sequential emissions reductions, public notification, and increased Department monitoring and forecast responsibilities. The declaration of any stage, and the area of the state affected, shall be based on air quality measurements and meteorological analysis and forecast.
1. A Stage I air pollution alert shall be declared when any of the alert level concentrations listed in paragraph (4) of this subsection are exceeded at any monitoring site and when meteorological conditions indicate that there will be a continuance or recurrence of alert level concentrations for the same pollutant during the subsequent 24-hour period. If, 48 hours after an alert has been initially declared, air pollution concentrations and meteorological conditions do not improve, the warning stage control actions shall be implemented but no warning shall be declared, unless air quality has deteriorated to the extent described in paragraph (2) of this subsection.
  2. A Stage II air pollution warning shall be declared when any of the warning level concentrations listed in paragraph (4) of this subsection are exceeded at any monitoring site and when meteorological conditions indicate that there will be a continuance or recurrence of concentrations of the same pollutant exceeding the warning level during the subsequent 24-hour period. If, 48 hours after a warning has been initially declared, air pollution concentrations and meteorological conditions do not improve, the emergency stage shall be declared and its control actions implemented.
  3. A Stage III air pollution emergency shall be declared when any of the emergency level concentrations listed in paragraph (4) of this subsection are exceeded at any monitoring site and when meteorological conditions indicate that there will be a continuance or recurrence of concentrations of the same pollutant exceeding the emergency level during the subsequent 24-hour period.
  4. Summary of emergency episode and significant harm levels:

<u>Pollutant</u>	<u>Averaging Time</u>	<u>Alert</u>	<u>Warning</u>	<u>Emergency</u>	<u>Significant Harm</u>
Carbon Monoxide (mg/m <sup>3</sup> )	1-hr	--	--	--	144
	4-hr	--	--	--	86.3
	8-hr	17	34	46	57.5
Nitrogen Dioxide (µg/m <sup>3</sup> )	1-hr	1,130	2,260	3,000	3,750
	24-hr	282	565	750	938
Ozone (ppm)	1-hr	.2	.4	.5	.6
PM <sub>10</sub> (µg/m <sup>3</sup> )	24-hr	350	420	500	600

**R18-2-719. Standards of performance for existing stationary rotating machinery**

- A. The provisions of this Section are applicable to the following affected facilities: all stationary gas turbines, oil-fired turbines, or internal combustion engines. This Section also applies to an installation operated for the purpose of producing electric or mechanical power with a resulting discharge of sulfur dioxide in the installation's effluent gases.
- B. For purposes of this Section, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. Compliance tests shall be conducted during operation at the normal rated capacity of each unit. The total heat input of all operating fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.
- C. No person shall cause, allow or permit the emission of particulate matter, caused by combustion of fuel, from any stationary rotating machinery in excess of the amounts calculated by one of the following equations:
- For equipment having a heat input rate of 4200 million Btu per hour or less, the maximum allowable emissions shall be determined by the following equation:  

$$E = 1.02Q^{0.769}$$
where:  
E = the maximum allowable particulate emissions rate in pounds-mass per hour.  
Q = the heat input in million Btu per hour.
  - For equipment having a heat input rate greater than 4200 million Btu/hr., the maximum allowable emissions shall be determined by the following equation:  

$$E = 17.0Q^{0.432}$$
where "E" and "Q" have the same meaning as in paragraph (1) of this subsection.
- D. For reference purposes only, the two equations in subsection (C) of this Section are plotted in Appendix 11, Figure 1. The emission values obtained from the graph are approximately correct for the heat input rates shown. However, the actual values shall be calculated from the applicable equations and rounded off to two decimal places.
- E. No person shall cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than ten consecutive seconds which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.
- F. When low sulfur oil is fired, stationary rotating machinery installations shall burn fuel which limits the emission of sulfur dioxide to 1.0 pound per million Btu heat input.
- G. When high sulfur oil is fired, stationary rotating machinery installations shall not emit more than 2.2 pounds of sulfur dioxide per million Btu heat input.
- H. Any permit issued for the operation of an existing source, or any renewal or modification of such a permit, shall include a condition prohibiting the use of high sulfur oil by the permittee. This condition may not be included in the permit if the applicant demonstrates to the satisfaction of the Director both that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in R18-2-202 will not be violated.
- The terms of the permit may authorize the use of high sulfur oil under such conditions as are justified.
  - In cases where the permittee is authorized to use high sulfur oil it shall submit to the Department monthly reports detailing its efforts to obtain low sulfur oil.
  - When the conditions justifying the use of high sulfur oil no longer exist, the permit shall be modified accordingly.
  - Nothing in this Section shall be construed as allowing the use of a supplementary control system or other form of dispersion technology.
- I. The owner or operator of any stationary rotating machinery subject to the provisions of this Section shall record daily the sulfur content and lower heating value of the fuel being fired in the machine.
- J. The owner or operator of any stationary rotating machinery subject to the provisions of this Section shall report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.8 percent.
- K. The test methods and procedures required by this Section are as follows:
- To determine compliance with the standards prescribed in subsections (C) through (H) of this Section, the following reference methods shall be used:
    - Reference Method 20 in 40 CFR 60, Appendix A for the concentration of sulfur dioxide and oxygen.

- b. ASTM Method D-129-91 (Test Method for Sulfur in Petroleum Products) (General Bomb Method) for the sulfur content of liquid fuels.
  - c. ASTM Method D-1072-90 (Test Method for Total Sulfur in Fuel Gases) for the sulfur content of gaseous fuels.
- 2. To determine compliance with the standards prescribed in subsection (J) of this Section, the following reference methods in the Arizona Testing Manual shall be used:
  - a. ASTM Method D-129-91 (Test Method for Sulfur in Petroleum Products) (General Bomb Method) for the sulfur content of liquid fuels.
  - b. ASTM Method D-1072-90 (Test Method for Total Sulfur in Fuel Gases) for the sulfur content of gaseous fuels.

# Fee Rule Summary for Class I Sources

## SOURCE

### CLASS I

#### Individual TITLE V

#### General TITLE V

PROCESSING  
FEE \$66/hr No  
maximum fee

#### ANNUAL FEE

##### Administrative

Aerospace:	\$12,900
Cement plants:	\$39,500
Combustion/Boilers:	\$9,600
Compressor stations:	\$7,900
Electronics:	\$12,700
Expandable Foam:	\$9,100
Foundries:	\$12,100
Landfills:	\$9,900
Lime Plants:	\$37,300
Copper & Nickel Plants:	\$9,300
Gold Mines:	\$9,300
Mobile Home Manufacturing:	\$9,200
Paper Mills:	\$12,700
Paper Coaters:	\$9,600
Petroleum Products Terminal facilities:	\$14,100
Polymeric Fabric Coaters:	\$12,700
Reinforced Plastics:	\$9,600
Semiconductors Fabrication:	\$16,700
Copper Smelters:	\$39,500
Utilities-Natural Gas:	\$10,200
Utilities-Fossil Fuel except NG:	\$20,200
Vitamin/Pharmaceutical Manufacturing:	\$9,800
Wood Furniture:	\$9,600
Others:	\$9,900
Others with Continuous Emission Monitoring:	\$12,700

##### Emission Based Fee

\$11.75/TON Per Pollutant for all regulated Pollutants

APPLICATION  
FEE \$500

#### ANNUAL FEE

##### Administrative

Aerospace:	\$12,900
Cement plants:	\$39,500
Combustion/Boilers:	\$9,600
Compressor stations:	\$7,900
Electronics:	\$12,700
Expandable Foam:	\$9,100
Foundries:	\$12,100
Landfills:	\$9,900
Lime Plants:	\$37,300
Copper & Nickel Plants:	\$9,300
Gold Mines:	\$9,300
Mobile Home Manufacturing:	\$9,200
Paper Mills:	\$12,700
Paper Coaters:	\$9,600
Petroleum Products Terminal facilities:	\$14,100
Polymeric Fabric Coaters:	\$12,700
Reinforced Plastics:	\$9,600
Semiconductors Fabrication:	\$16,700
Copper Smelters:	\$39,500
Utilities-Natural Gas:	\$10,200
Utilities-Fossil Fuel except NG:	\$20,200
Vitamin/Pharmaceutical Manufacturing:	\$9,800
Wood Furniture:	\$9,600
Others:	\$9,900
Others with Continuous Emission Monitoring:	\$12,700

**Notes:** There is no fee for transfers, administrative amendments, or 317 changes of permits.

The fee rate will be adjusted in the beginning of each year based on the CPI index.

Administrative and Inspection fees are due each year no later than March 31st or 60 days after the Director mails the invoice, whichever is later.

Pollutants for which annual emissions based fees are calculated are: Nitrogen oxides, volatile organic compounds, conventional air pollutants (except carbon monoxide and ozone), any pollutant subject to Section 111 of the Act, and any federally listed hazardous air pollutant.

Information for this table was taken from the A.A.C. R18-2-326 and R18-2-511

# Fee Rule Summary for Class II Sources

## SOURCE

### CLASS II

#### TITLE V

#### NON TITLE V

##### INDIVIDUAL

##### GENERAL PERMIT

##### INDIVIDUAL

##### GENERAL PERMIT

PROCESSING  
FEE \$65/Hr No  
maximum Fee

#### ANNUAL FEE

##### Administrative

Synthetic Minor Sources - Except  
Portables

Aerospace:	\$12,900
Cement plants:	\$39,500
Combustion/Boilers:	\$9,600
Compressor stations:	\$7,900
Electronics:	\$12,700
Expandable Foam:	\$9,100
Foundries:	\$12,100
Landfills:	\$9,900
Lime Plants:	\$37,300
Copper & Nickel Plants:	\$9,300
Gold Mines:	\$9,300
Mobile Home manufacturing	\$9,200
Paper Mills:	\$12,700
Paper Coaters:	\$9,600
Petroleum Products Terminal facilities:	\$14,100
Polymeric Fabric Coaters:	\$12,700
Reinforced Plastics	\$9,600
Semiconductors Fabrication:	\$16,700
Copper Smelters:	\$39,500
Utilities-Natural Gas:	\$10,200
Utilities-Fossil Fuel except NG	\$20,200
Vitamin/Pharmaceutical Manufacturing:	\$9,800
Wood Furniture:	\$9,600
Others:	\$9,900
Others with Continuous Emission Monitoring:	\$12,700
Stationary Source:	\$5,000
Portable Source:	\$5,000
Small Source:	\$500

APPLICATION  
FEE \$500

ANNUAL ADMINISTRATIVE FEE	
Small Source:	\$500
Others:	\$5,000

PROCESSING FEE  
\$65/HOUR  
\$25,000 MAXIMUM FEE

ANNUAL INSPECTION FEE	
Stationary Sources:	\$3,250
Portable Sources:	\$3,250
Small Source:	\$500

APPLICATION  
FEE \$500

ANNUAL INSPECTION FEE	
Gasoline Service Station:	\$500
Crematorium:	\$1,000
Others:	\$2,000

ACCELERATED PERMIT  
APPLICATION FEE  
\$15,000  
\$25,000 MAXIMUM FEE

**Notes:** There is no fee for transfers, administrative amendments, or 317 changes of permits.  
The fee rate will be adjusted in the beginning of each year based on the CPI index.  
Administrative and Inspection fees are due each year no later than March 31st or 60 days after the Director mails the invoice, whichever is later.  
Information for this table was taken from the A.A.C. R18-2-326 and R18-2-511